

"Harmless" virus hoaxes do exact a price: They eat up time and resources. Page 71

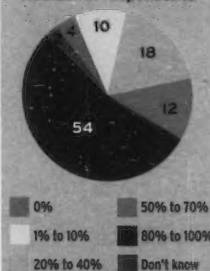
Remote access vendors aiming products at small companies accidentally benefit big ones. Page 63

COMPUTERWORLD

The Newsweekly for Information Technology Leaders
News updates, features, forums: www.computerworld.com
December 9, 1996 • Vol. 30 • No. 50 • 178 pages • \$3/Copy \$48/year

Approximately what percentage of your desktop users will migrate to Windows 95 in the next two years?

Number of respondents



Base: 100 sites surveyed in August that eventually plan to migrate to Windows 95
Source: Computerworld survey

Microsoft pushes OEMs for 'net gain

By Laura DiDio and April Jacobs

MICROSOFT IS trying to launch a pre-emptive strike in the Internet arena by making sure its Windows operating systems are the first things users see when they boot up.

That move has caused some industry observers to foresee antitrust violations; rivals and some PC makers to cry foul; and users, well, mostly to yawn.

Citing a condition of current licensing terms, Microsoft Corp. is demanding that PC makers

Microsoft, page 127

Oracle under the gun

► Informix turning screws with Universal Server

By Craig Stedman

NEW YORK

HAVING SHIFTED ITS focus to network computers, Oracle Corp. has suddenly found itself forced to defend its database stronghold from the barbarians at Informix Software, Inc.

Informix last week announced its Universal Server

object/relational database at DB/Expo '96 and will ship the product by year's end. That is six months or more before Oracle will finally be ready with the long-promised Oracle8, which also will be object-enabled.

Users who crave object and multimedia data support are taking note. CS First Boston

Oracle, page 127

"I'm dreading the day when we will actually have to move to a Unix box. I think I will cry."

—Lee Perry, systems manager, Avery Dennison



Stayin' alive

► Legacy minicomputer users loyal to the end

By Jaikumar Vijayan

LEE PERRY STILL remembers when he upgraded his HP 3000 system 2½ years ago.

"It was a used machine that we had to ship all the way from California," said Perry, a systems manager at Avery Dennison Corp. in Bowmanville, Ontario. "When it finally got here, the case was all smashed up, the system had tipped over, and a whole side had caved in."

"But then we plugged it in,

switched it on, and it has been working just fine ever since," he said.

It is that brand of ruggedness that has prompted Perry to stick with Hewlett-Packard Co.'s aging minicomputer platform for 12 years now. "And in all that time, the system has not gone down even once," he said.

So it isn't surprising that most users in a Computerworld survey say they plan to keep their proprietary systems as

Stayin' alive, page 16

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LORD OF THE TOKEN RINGS
Cabletron to ship fast modules for LAN networks. Page 2

DO OR DIE FOR ISDN
Speedy alternatives pose threat. Page 4

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MICROSOFT SHIFTS STANCE ON JAVA
But it continues to draw fire from developers. Page 53

Traditional mail clients losing hold as users turn to browsers

By Barb Cole

THE DAYS OF BUYING into a client/server messaging architecture may be over, as proprietary mail clients — under pressure from mail-enabled Web browsers — appear to be dying.

The shift toward browser-based mail won't happen overnight. This has been a banner year for mail clients, and companies that have begun large-scale rollouts of these products are expected to continue their deployments.

But the tide is definitely starting to turn. More companies are opting to roll out World Wide Web browsers as their principal mail client or at least are planning to offer browsers as an alternative for users who don't require full-blown mail clients, according to analysts and users.

Mail clients, page 14

Time's running out.

With the clock ticking down, this week's Computerworld offers three features on the year 2000 conversion problem. Turn to **In Depth**, page 96, for a sound-off: Is it time to panic, or isn't it? In **Managing**, page 83, find out what you should do now if you're behind on your conversion. In **IT Careers**, page 98, find out which IS professionals stand to gain from these projects.



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NEWSPAPER

UP FRONT

Hype patrol

thought you'd be interested in some of the tectonic shifts in the industry that are occurring right under your feet. I didn't know about them myself until some vendors told me the following last week:

■ Data warehouses are out; data marts are in. It turns out warehouses are too expensive to develop. IS managers who have dropped a couple of million dollars on warehouse projects are no doubt enormously relieved.

■ Intranets are out; "extranets" — hybrid internal/external nets — are in. So intranets lasted, like, a whole year, right?

■ Client/server is out; thin clients are in. Sorry you spent so much money when client/server was popular a couple of years back.

■ Java is mature. Stop wasting money on C and Cobol.

OK, remove tongue from cheek. None of these statements is true. All were used in product presentations I heard at DB/Expo '96 last week. The computer industry's hype cycle continues to spiral out of control, and I sense a

Intranets lasted, like, a whole year

lot of IT people are getting sick of it. I wish I could say the hype will abate soon, but I doubt it. The Internet and the advent of really big servers have created application categories that didn't exist just a year ago. And with that come the marketers and their miracle cures.

The burden falls heavily on IS at these times to take a pin to the hype balloon. Be wary of airline magazine syndrome, in which users gush about something they read about in-flight.

Stay well-informed. Call your colleagues for advice. And keep your BS detector in tune. There are often good ideas behind the hype, but they emerge only after the high initial expectations have faded.

Paul Gillin, Editor
Internet: paul_gillin@cw.com

THE FIFTH WAVE

BY RICH TENNANT



"Our classroom PCs have created a challenging atmosphere where critical analyzing, synthesizing, and problem-solving skills are honed. I think the students have gotten a lot out of them too."

TOKEN RING

Cabletron plans faster modules

By Bob Wallace

CABLETRON SYSTEMS, INC. this week will detail plans for Token Ring switching modules that will enable IBM shops to supercharge their Token Ring networks. *Computerworld* has learned.

The vendor is lining up faster and 20% less-expensive modules for its data center ATX LAN switch as well as Token Ring switching modules for its flagship MMAC-Plus hub, sources close to the company said.

Most IBM shops use Token Ring LANs to support mission-critical accounting and finance applications and are candidates for these enterprise Token Ring switches and switching hubs. Ethernet LANs are more widely deployed but are typically used for less critical applications.

The latest market figures show Cabletron finishing second to IBM, with 16.6% of the 54,400 ports shipped in the third quarter of this year, according to Dell'Oro Group in Portola Valley, Calif. And the market is booming (see chart).

"Anything with a lower cost that gives me more bandwidth would be something I'd commit to using in my Token Ring network very soon," said Bob Cur-

U.S. TOKEN RING SWITCH REVENUE	
1995	\$55M
1996	\$307M*
1997	\$633M*
1998	\$1.08B*
*Projected	

Source: Dell'Oro Group, Portola Valley, Calif.

rier, director of data communications at Duke University in Durham, N.C., a longtime Cabletron customer who already uses the vendor's ATX switches.

The modules will allow users to deploy fatter pipes where they need them most: between scores of employees and heavily used resources such as high-speed servers and mainframes. They will also be used in backbone networks.

"These products will enable users to protect and extend their large investments in Token Ring technology by providing dedicated bandwidth where it's needed," said John Morency, a principal at The Registry, Inc., a consulting and research firm in Newton, Mass. It is imperative for Cabletron to maintain its Token Ring switching focus, he added, as it takes on IBM.

A Cabletron spokesman con-

firmed plans to announce the Token Ring switching products but wouldn't provide details.

In addition to being 20% less expensive than existing ATX plug-ins, the Cabletron Token Ring Switch Modules will support a nascent technology that can double the speed on each Token Ring switch port, sources said.

That technology is Dedicated Token Ring — also known as Full-Duplex Token Ring — that enables each 16M bit/sec. switched port to operate at 32M bit/sec. That gives users fatter pipes through which to deliver simultaneous access for hundreds of users via heavily used servers and mainframes.

"A 32M-bit pipe to servers would be something I'd jump on to help me help users get faster response times from servers," Carrier said.

Token Ring modules due for Cabletron's MMAC-Plus will extend the Rochester, N.H., hub maker's beachhead in the Token Ring market because there are far more users of that high-end hub than ATX customers.

The new Token Ring Switch Modules will ship in 90 days, sources said. Availability and pricing for the MMAC-Plus modules weren't available.

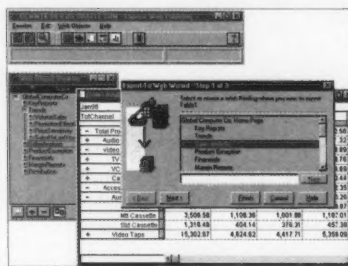
Oracle puts users in Web publisher's seat

By Sharon Gaudin

ORACLE CORP. will release its Express Web Publisher at Internet World '96 this week in New York and at the same time loosen the hold webmasters have on users.

The software was designed to let end users without any Web authoring capabilities take the information they have produced through online analytical processing (OLAP) and dynamically create a World Wide Web page for it.

"End users have been beholden to webmasters," said David Menninger, senior director of marketing for Express Technology at Oracle. "If the webmaster hasn't published information on the Web, no one has access to it. We want to empower end users to not only find that information but to publish it."



Oracle's Express World Publisher may reduce users' reliance on webmasters

That would constitute a departure for many companies that require all data posted on

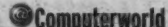
intranet or Internet sites to pass through the webmaster for security, legal and confidentiality reasons.

The Web pages, which will be interactive, typically will be posted on intranets, although they could go out on the Internet.

Express Web Publisher is free and will be released in February as part of Express Objects, a development environment for

OLAP applications, and Express Analyzer, an enterprise solution for financial analysis.

Come visit our Web site



• THE ROAD TO 1/1/00. Stymied by your year 2000 project? Our decision tree helps you plot your next step. Plus, online links and a year 2000 scoreboard. (www.computerworld.com)

• THE INTERGRAPH PUSH. Intergraph Corp. makes a strong foray into the quad-Pentium server market with the InterServe 660. Details in Buyer's Guide. (www.computerworld.com/guide)

JavaSoft heats up Beans tool kit beta

By Sharon Gaudin

JAVABEANS WILL MOVE from theory to reality this week as JavaSoft prepares to release the beta version of its Bean Developer Kit (BDK) at Internet World '96.

The tool kit offers programmers a development environment, documentation, tutorials and a testing environment for Bean development. JavaBeans is the architecture that links Java applets to applications so they can communicate and invoke one another. Java applets until now have acted as separate applications with no link.

JavaSoft is a division of Sun Microsystems, Inc.

LEARNING SHORTCUT

"I can see the tutorial and testing as potentially very useful, especially for those of us who are learning about Beans and what they're about," said Larry Hagerty, a senior systems engineer at GTE Data Services in Tampa, Fla.

Gina M. Centoni, product line manager for Java Beans at Java-

Soft, said BDK 1.0 beta will include an object code build, which enables the installation and building of a Bean; documentation on how to build a Bean; and a Bean Box, which gives developers a tutorial about what a Bean can do and an environment where developers can test new Beans.

The official release of BDK 1.0 is slated for the first quarter next year.

Centoni said several tool vendors will support Bean. IBM is adding Bean support to its upcoming Visual Age for Java. Scott Hebner, a product manager at IBM, said Beans support will be added to the Visual Age family throughout next year.

IBM also will demonstrate at Internet World its Applet Author, a tool announced late last week that will let developers build World Wide Web applications and pages with JavaBeans.

Borland International, Inc. is adding support to its Latte.

Microsoft's proposed Java strategy draws fire, user concern. Page 53

Say it ain't so, Joe

► Longtime sales executive now a consumer advocate

By Julia King Joe Orlando likes to say he's buying his way back to heaven. Today, he does it dressed in a double-breasted Armani suit, silk tie and matching pocket handkerchief. A gold Rolex flashes be-

neath his crisp, white monogrammed cuff when he waves his arm to make a point. His perfectly coiffed dark brown hair never seems to move as he swaggers back and forth at the front of the room.

He's telling his audience of information systems buyers the one about the software vendor that hired a headhunter to set up interviews for non-existent jobs with members of a firm's procurement team.

PUMPING FOR INFO

Over successive \$200 dinners at the best restaurants in town, the recruiter would extract from each of his marks the company's negotiating strategy and exact purchase plans—all under the guise of conducting an employee search for an unnamed client.

Say it ain't so Joe, page 78



Consultant Joe Orlando arms users against shady IS dealings

IBM serves up real-time video over Internet

By Tim Ouellette

IBM LAST WEEK announced an RS/6000 server for delivering real-time video over the Internet and later this month will test a tool set that simplifies searches of diverse multimedia files.

VideoCharger for AIX 4.2 can stream audio and video over the Internet to World Wide Web browsers without requiring that users download and then play the file.

The server can detect what speed is best to deliver the real-time video without affecting bandwidth or bogging down the client, IBM officials said.

To go along with multimedia content delivery, IBM later this month will start beta-testing a suite of tools called MediaMiner.

MediaMiner tools will let Web developers add full-text and image search capabilities to multimedia data stored on the RS/6000. Future MediaMiner

tools will search for video and audio data and will support the S/390 mainframe platform.

The moves follow a recent announcement of high-availability Web servers based on the RS/6000 and the delivery of Multimedia Server for AIX software earlier this year.

For example, Indiana University uses Multimedia Server to manage the launch of more than 1,000 sound files per day.

Future MediaMiner tools will search for video and audio data.

While Multimedia Server can serve up video, the performance isn't the same as VideoCharger, which can move the video over Internet protocols.

"VideoCharger is a natural extension of the Multimedia Server, which was designed more for

client/server networks and not for high-performance video serving," said Shulamit Gershenson, an analyst at International Data Corp. in Framingham, Mass.

"We usually focus on desktop multimedia, so we are interested in looking at the Web-based video delivery" that VideoCharger offers, said Mike Halm, manager of multimedia at Pennsylvania State University in State College, Pa.

The ability to stream video in real time at low bit rates lets users access video from remote PCs via a 28.8K bit/sec. modem, for example.

But in a blow to IBM's OS/2 efforts, VideoCharger delivers video only to Windows 95 clients. It also requires that users run the VideoCharger Player, a Web browser helper application.

IBM also announced MediaStreamer, an RS/6000 bundled with software to stream audio and video in digital and analog formats. MediaStreamer bundles target broadcasters and cable television companies. Pricing starts at \$128,770.

VideoCharger costs \$28,600 and will be available by March.

Storage options: Zip or Zap

By Matt Hamblen

YOU'VE HEARD OF the Iomega Corp. Zip drive for desktop storage. Well, here comes Zap for CD from Cheyenne Software, Inc.

The 32-bit driver lets users store up to 650M bytes of data on a recordable CD, using any desktop computer that runs Windows 3.1x or Windows 95.

Cheyenne, a division of Computer Associates International, Inc. in Islandia, N.Y., today plans to announce Zap for CD. The product will be available next month for \$69.

Zap for CD costs less than the 10 other software drivers for recordable CDs and is easier to use, said analyst Michael Peterson, president of Strategic Research in Santa Barbara, Calif.

Zap for CD allows for the drag-and-drop features of Windows and doesn't require pre-mastering to store the files on the CD, Peterson said.

Rick Onyon, director of desktop products at Cheyenne, said the company chose the Zap

name because it wants to convey that the product will be as easy to use as the popular Zip drive.

SHORT SHELF LIFE?

One lingering question is whether the recordable CD market will survive Digital Video Disc (DVD), a technology that allows much more storage than a recordable CD.

"We think DVD is a long way off," Onyon said.

Peterson said the future of recordable CD looks promising. Analysts note that the federal government requires banks to archive records for as long as seven years.

One reason CDs are good for storage is their low cost—\$8 for a 650M-byte CD, compared with \$20 for a 100M-byte Zip disk, Peterson said. A recordable CD drive costs about \$500 and could drop to \$300 by mid-1997, compared with \$200 for a Zip drive today.

But the real value of a recordable CD may be that once it is recorded upon, it can be played on a CD-ROM drive.

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LICENSE MONITORING
"The [SPA] has put [the] fear of God in people," says Diane DelVecchio of Smith Technology.
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PUTTING ISDN TO THE TEST

Download times of a 2M-byte image file

Technology used	Time
56K bit/sec. ISDN line	35.7 seconds
1.5M bit/sec. DSL line	1.3 seconds
4M bit/sec. cable connection	.05 seconds

ISDN nears point of now or never

By Kim Girard

SANTA CLARA, CALIF.

USERS AT ISDN WORLD last week questioned why the industry hasn't moved more quickly to solve ordering, installation, availability and pricing problems that have plagued the technology for years.

But they expect the pressure to fix those problems to intensify in the next year as competitors plot to attract Integrated Services Digital Network (ISDN) customers with promises of higher speeds and lower prices.

To fend off competition from a new breed of high-speed alternatives, ISDN carriers and vendors must work together to offer easier ordering and installment and more consistent national pricing, said Jeffrey Fritz, a telecommunications engineer at West Virginia University in Morgantown.

"Every year is a critical year for ISDN," Fritz said. "It's an evolving technology that's proving itself." But, he added, "the question is, is it improving fast enough?"

RINGING IN A NEW

The complaints at this year's conference had a familiar ring — they are the same problems discussed by the group last year and the year before.

As a result, national ISDN line installations are lagging behind expectations. For example, Pacific Bell expects to install 200,000 ISDN Basic Rate Interface lines by the end of next year, far fewer than the 1 million lines targeted by 1998.

In the meantime, industry buzz has moved to new lines of super high-speed technology, including cable, 56K bit/sec. modems and Asymmetric Digital Subscriber Line (ADSL) technology. ADSL promises — though not on a wide scale for

several years — to deliver Internet access to remote users at speeds of up to 6M bit/sec.

But the rival offerings are expected to have their own problems. ADSL, a technology that delivers high-speed Internet access over regular copper lines, won't be widely available for several years and will require expensive reconditioning of telephone lines in some cases.

Experts said that in some areas, 56K bit/sec. modems

"Every year is a critical year for ISDN."

— Jeffrey Fritz,
West Virginia University

can't deliver the speeds promised because noise filters installed on phone lines limit bandwidth.

Many users said they can't take advantage of 33.6K bit/sec. modem speeds for that reason. Providers also must work out a standard to make 56K bit/sec. modems interoperable.

Not surprisingly, many telecommunications managers are confused by — or completely unaware of — these fledgling technologies.

Teresa Mills and Scott Gardner, two telecommunications systems engineers at Lockheed Martin Corp. in Bethesda, Md., are trying to learn as much as possible while preparing for companywide home office ISDN installations next year.

Gardner said the challenge of ISDN is predicting cost (rates vary from \$17 per month from Northern Alabama Telephone Co. to \$100 per month from US West, Inc.) and what users will face ordering and installing it.

"We're concerned that once they actually set it up, it won't be as fast as expected," Mills said.

Ascend offers high-speed Internet links. Page 63.

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Taking control

► Load-balancing software gives network managers ability to regulate traffic

By Bob Wallace
and Patrick Dryden

PROVIDING USERS with sorely needed control and management of internal and external network traffic is the aim of a trio of products debuting this week.

The fast pace of intranet construction and the skyrocketing use of the Internet are creating network traffic problems that force users to continually add World Wide Web servers — a costly and inefficient practice.

The packages from start-up Resonate, Inc., HydraWeb Technologies, Inc. and IBM offer a less expensive, more manageable approach to boosting Web site performance by spreading hits among multiple local or geographically dispersed Web servers.

Resonate, in Mountain View, Calif., is rolling out \$7,995 Web server software. HydraWeb, in New York, is introducing an overhauled version of its namesake load-balancing software. IBM is weighing in with Network Dispatcher, another load-balancing software package.

Users and analysts lauded Resonate's Dispatch Web server software as the most advanced and flexible package of the lot.

"I'm excited about the idea of having servers handle specific

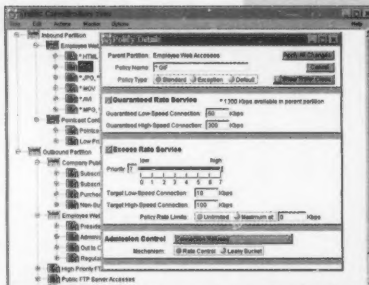
types of calls rather than replicating the contents on each box," said Sheryl Olguin, a group leader at Harris Corp. in Melbourne, Fla.

"Dispatch goes beyond Web load balancing, which other packages handle, to attack performance issues," said Clay Ryder, an analyst at Zona Research, Inc., a consulting firm in Redwood City, Calif. "Calls can be routed to servers that perform separate functions, which eliminates the inefficient practice of replicating server contents in each box."

FEATURE-PACKED

Resonate's Dispatch offers IS managers redundancy, Java-based system management and reduced reliance on proprietary hardware, Ryder added. The software can run on Sun Microsystems, Inc. SPARCstation servers. HydraWeb and Cisco Systems, Inc. offerings require special proprietary hardware. The Java package lets IS managers monitor the performance of their Web sites.

"Without redundancy, the server becomes a single point of failure for your Web site," said Steve Plastrik, vice president of technical operations at Viacom Interactive Services, Inc. in New York. "If that server goes down, you're out of business."



With Packeteer's PacketShaper, managers can set bandwidth priority policies to guarantee minimum service levels

Peter Madams, vice president of software at PictureTalk, Inc. in Pleasanton, Calif., agreed. "We need our servers up all the time and operating at peak performance, and Dispatch is the only way to create reliable and redundant Web sites," he said. PictureTalk, which makes conferencing software products, has Web servers in New York, Phoenix, Los Angeles and San Francisco.

The HydraWeb load-balancing package works like a router, directing traffic to the server best able to handle each request within a farm of Web servers.

Instead of installing on a server, HydraWeb comes in a self-contained hardware unit that eliminates software setup and enables remote management and troubleshooting. It offers hot-spare capability, so another

Device prioritizes 'net traffic

A clever start-up this week will introduce a kind of valve for Internet access points that will let network managers control the flow of traffic in and out of their domains for the first time.

Packeteer, Inc. in Campbell, Calif., will unveil PacketShaper, a hardware/software combination that allocates network bandwidth to avoid the burst-and-delay performance that frustrates Internet users. Analysts praised the approach for its unique control and simplicity.

PacketShaper enforces policies that define which users or applications can use how much of the precious available bandwidth. The definitions are based on the priority of user access.

For example, managers or webmasters can balance free-for-all TCP/IP access to a server from local network, intranet and dial-up connections to prevent a few high-speed users from dominating a Web site. They can guarantee a minimum level of service for a vital activity, such as reporting sales or making purchases.

In the struggle to improve Internet performance, PacketShaper complements load balancers but doesn't require new protocols or changes to routers, clients or servers. Each unit costs \$7,250 and is inserted between a router and hub or server.

"Other approaches rely on a handshaking scheme to negotiate quality of service, but this plops down in an existing network," said Bobbi Murphy, principal analyst at Dataquest in San Jose, Calif. "It's a slick way to control flow without overhauling everything." — Patrick Dryden

unit can take over in case of failure. Pricing starts at \$8,000 and includes agents to support Windows NT and a variety of Unix servers.

IBM's Network Dispatcher is similar to Resonate's Dispatch but lacks the intelligent scheduling capabilities, analysts said. The offering costs less than rival products.

Like Dispatch and HydraWeb,

Network Dispatcher distributes hits across multiple local or geographically dispersed Web sites and simplifies administration by letting all Web servers use one uniform resource locator and one IP address.

Network Dispatcher software costs \$1,500 and will ship in the first quarter of 1997 for Sun Solaris and Windows NT platforms.

S H O R T S

Court to hear Decency Act case

In a decision that will set national precedent for Internet usage, the U.S. Supreme Court on Friday agreed to hear a lawsuit filed by the American Civil Liberties Union that seeks to throw out the Communications Decency Act. The law was designed to protect minors from being exposed to obscene or indecent material online. Opponents say the law is so broad that it could criminalize speech that is legal in other media. A decision is expected in the first half of 1997.

Compaq recalls adapters

Compaq Computer Corp. is recalling defective AC adapters supplied with its Armada 4100 notebooks because they could pose an electrical shock hazard. Compaq's voluntary action results from an agreement with the U.S. Consumer Product Safety Commission. The recall affects three-pronged AC adapters sold from Sept. 23 to Nov. 20 that have the number 217984-001 on the bar-code label. Owners of these notebooks should call (800) 322-9515 for free replacement adapters.

IBM builds framework

IBM is moving ahead on its planned object framework, code-named San Francisco, adding 25 independent software vendors to its team and releasing the first code for limited testing. IBM executives said last week they released code for the framework to 10 software developers in late November. A spokesman said the firm expects to release beta versions of code and object classes in the first half of next year and to announce specific products by the middle of the year. The project is an object-oriented application framework built with Java. IBM also announced that its group of independent software vendors has grown from 50 to more than 70. Those additions include Borland International, Inc., Platinum Technologies, Inc. and Symantec Corp.

More layoffs at AMD

Microprocessor maker Advanced Micro Devices, Inc. last week said it will lay off 250 employees to cut costs. Most of the cuts affect workers at AMD's Austin, Texas, and Sunnyvale, Calif., facilities. AMD, which laid off

200 workers in September, said it would take an \$8 million charge to pay for this month's layoffs.

PC makers back 56K modems

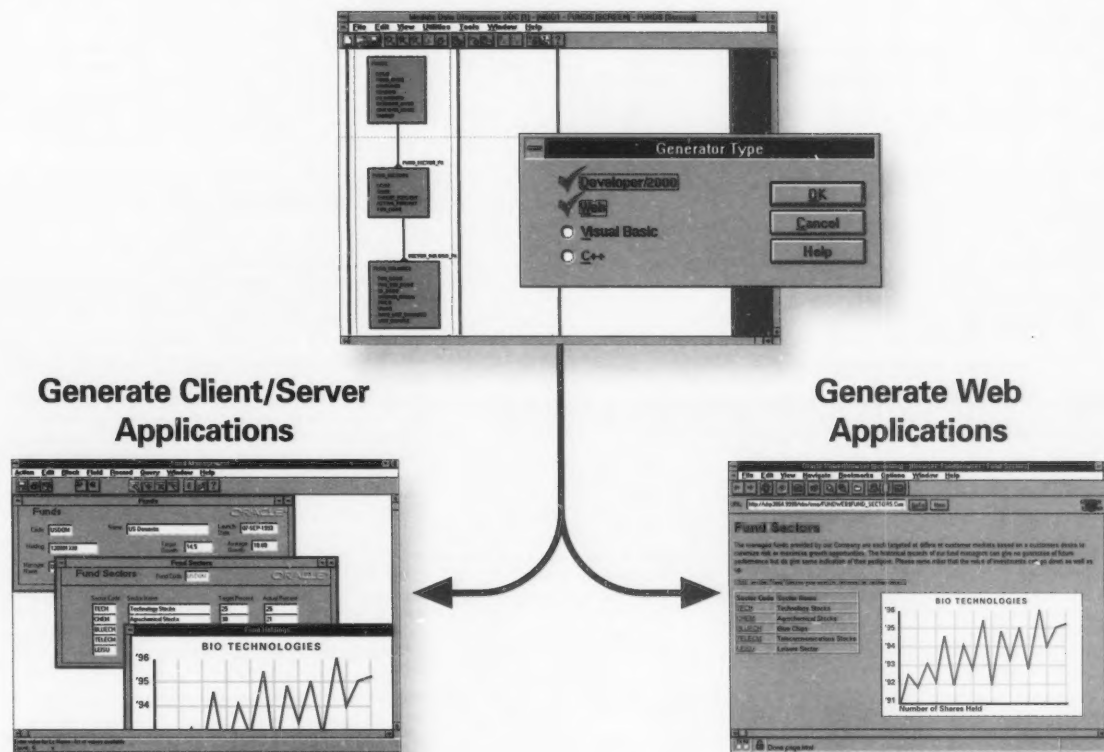
Four leading PC manufacturers last week said they would support a technical standard for 56K bit/sec. modems being pushed by Lucent Technologies, Inc. and Rockwell Semiconductor Systems. AST Computer, Inc., Compaq, Hewlett-Packard Co. and Toshiba Corp. said they will support K56Flex, a protocol that will interoperate between Rockwell's V.flex and Lucent's K56Plus modem technologies.

Oracle to soak up Java

At this week's Internet World '96 in New York, Oracle Corp. will announce plans to support Java across its Network Computing Architecture and within its databases. The Redwood Shores, Calif., company is also beta-testing its Project Apollo electronic commerce server and WebServer 3.0, upcoming World Wide Web server software with transaction processing support.

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INTERNET WORLD '96

Open Market upgrade will support big business on 'net

By Mitch Wagner

INTERNET COMMERCE vendor Open Market, Inc. this week will announce a more robust version of its mainline server product that is better suited to handle big-business sales and service over the 'net.

OM-Transact 2.3 will include stronger ties to corporate back-office systems, new payment-processing capabilities and registration features to help webmasters customize their World Wide Web sites for individual visitors.

The company said it plans to ship its OM-Transact 2.3 software

by mid-February. OM-Transact records and verifies transactions — such as sales, requests for information and user log-ins to private Web sites. It was designed to work with big Web sites that serve tens of thou-

sands of users or more.

The software also was designed to serve as an adjunct to any standard Web server, including those from Microsoft Corp., Netscape Communications Corp. and the freeware Apache server.

Open Market in Cambridge, Mass., has "a really good foundation for how to do transactions on the Web," said Shadrach Todd, manager of systems development at Time, Inc. New Media in New York, which produces the Pathfinder Web site (pathfinder.com).

Experts said Open Market's technology

is likely to become more important next year. As businesses look to use the 'net for interactive commerce, they will need a way to track transactions of all types. Open Market's software is scalable, so one OM-Transact server can handle transactions for multiple Web servers across the country.

The Internet vendor has racked up a few high-profile corporate users, including \$9 billion Banc One Corp., \$5.2 billion AMP, Inc. and \$8 billion Time Warner, Inc.'s New Media unit.

Open Market doesn't have any real competition yet in its transaction-oriented view of Web commerce, industry observers said. But Microsoft is de-

veloping its own transaction server. Other potential rivals are developing servers to handle specific transactions.

For instance, servers devoted to hosting catalogs on the Web are shipping, or on the way, from Microsoft, Oracle Corp., Netscape and others. In another kind of transaction, several software vendors, including Vignette Corp. in Austin, Texas, have developed servers for building and publishing magazines and other periodicals on the Web.

The new version of OM-Transact will be announced at Internet World this week in New York. It will cost \$250,000 for corporate users and will run on major Unix platforms.

The screenshot shows a web browser window titled "US Store Order Form". It contains several sections for user input: "Ship To" (Name, Address, City, State, Zip, Country), "Billing To" (Name, Address, City, State, Zip, Country), and "Payment Method" (Credit Card, Check, Money Order). Below these is a table of items in the cart, including "Product Description", "Quantity", "Unit Price", and "Total Price". The table lists items like "Microsoft Windows" and "Microsoft Office". At the bottom, there are fields for "Total", "Shipping", and "Grand Total".

Open Market's software lets companies create customized views for their Web site visitors

Tools tumble from Internet World

This week's Internet World '96 in New York will introduce tools for users on both sides of the computer screen.

End users will see a boatload of tools designed to help them enhance privacy and sort good information from the clutter and noise of the Internet and the Web.

And behind the scenes, Internet developers will get some first looks at tools that exploit emerging technologies such as Sun Microsystems, Inc.'s Java.

Novell, Inc. this week will unveil alpha versions of new Java tools for IntranetWare, enhanced remote access capabilities for IntranetWare and enhancements to the Novell Web Server that boost speed, security and Internet access. IntranetWare, which shipped in September, combines a Web server with Novell's NetWare.

Pretty Good Privacy, Inc. in Redwood Shores, Calif., will introduce a product tentatively named PGWeb. It was designed to block Web "cookies," a technology that helps webmasters keep track of visitors to their sites.

And the Hitachi Software Products Group will introduce a server-based version of its ZooWorks Web indexer, a research tool that will index the entire contents of every page visited by every member of a workgroup. A single-user, desktop-based version came out earlier this year. — Mitch Wagner and Laura DiDio

NetMeeting gets videoconferencing

By Justin Hibbard

MICROSOFT CORP. this week will unveil the second beta version of its Internet collaboration software, NetMeeting 2.0, that will add videoconferencing to existing voice conferencing and application-sharing features.

The addition of videoconferencing based on the widely supported H.323 standard will help users build a platform for interoperable Internet telephony products, according to Microsoft. But jittery picture quality and glutinous bandwidth requirements are likely to limit its use in corporations, users and analysts said.

frame/sec., according to Microsoft.

"If you're actually trying to do a videoconference, 4 or 5 [frame/sec.] is really slow," said Rob Enderle, an analyst at Giga Information Group in Santa Clara, Calif. That's one reason few employees use desktop videoconferencing for internal one-

"We're finding that the user community is expecting better-than-TV quality," Marshall said. "It's going to be very difficult for some of these videoconferencing systems to live up to."

Marshall, who hasn't tested the new version of NetMeeting, is a chief architect of Bear, Stearns' intranet, which runs multipoint videoconferencing over a 2.5G bit/sec. network.

Multipoint communication that supports up to eight conferees is essential for videoconferencing to be accepted, he said.

But NetMeeting's point-to-point videoconferencing will suffice at the University of Michigan, where pathologists plan to use the new feature to communicate with

colleagues at the University of Pittsburgh, according to Mike Lougee, a University of Michigan researcher.

The Ann Arbor, Mich., school has been using NetMeeting's application sharing to view live, microscopic video generated by an application at the University of Pittsburgh.



Microsoft's NetMeeting videoconferencing performance will depend on the hardware used

AT WHAT SPEED?

NetMeeting's videoconferencing provides point-to-point communication at speeds of up to 10 frame/sec. across a 10M bit/sec. Ethernet LAN when used with 166-MHz Pentium processor-based PCs outfitted with video capture cards. When used with parallel port capture devices such as Connectix Corp.'s QuickCam, speeds slow to about 4 to 6

to-one communications, Enderle said.

Another reason is that users accustomed to television have high expectations of desktop videoconferencing, said Jeff Marshall, senior managing director of communications technologies at Bear, Stearns & Co. in New York.

Scripting improves access to Exchange from Web apps

By Barb Cole

MICROSOFT CORP. plans to rename the upcoming version of its messaging server Exchange 5.0 and make it easier to leverage Exchange features in World Wide Web applications, sources close to the company said.

At Internet World '96 this week, Microsoft will disclose plans to support its Active Server scripting language in Exchange. That capability, dubbed Active Messaging, will let Web developers incorporate messaging features into applications.

Active Messaging could be used, for instance, to add collabor-

ative discussions to a Web site without custom coding, sources said.

"It sounds like [Active Messaging] could save development time," said Greg Scott, information systems manager at the College of Business of Oregon State University in Corvallis, Ore., a large Exchange site.

Exchange 5.0 — previously dubbed Version 4.5 — will ship at the end of January. The new release will also support Post Office Protocol 3 and Lightweight Directory Access Protocol. It will include a connector for Lotus Development Corp.'s CC:Mail.

INTERNET WORLD '96

Tool promises Web authoring without HTML

By Matt Hamblen

MACROMEDIA, INC., which makes the popular Shockwave World Wide Web authoring tools, today at Internet World in New York will unveil a publishing tool that lets webmasters create interactive business applications without writing Hypertext Markup Language (HTML) scripts.

Backstage Internet Studio 2.0 is being tested by Sam's Club, a subsidiary of Bentonville, Ark.-based Wal-Mart Stores, Inc. Online development manager Marcus Carruthers uses the product to create an interactive training area on the corporate intranet.

"It really makes it extremely easy for a novice to create applications," Carruthers said.

Backstage Internet Studio 2.0 includes an HTML editor with a point-and-click interface, maintenance software that can support multiple sites, an object server that works with any Web server and a group of 16 objects for creating database access and interfaces.

Backstage Internet Studio 2.0 "really makes it extremely easy for a novice to create applications."

- Marcus Carruthers, Sam's Club

Joan-Carol Brigham, an analyst at International Data Corp. in Frisco, Colo., said that although Netscape Communications Corp. and Microsoft Corp. also provide effective authoring tools, Macromedia's package does the work visually without requiring HTML programming. It embeds the HTML code in the objects, which are then accessed via the drag-and-drop graphical interface.

SIGN OF THE TIMES

Managers at 435 Sam's Club locations will be able to use the site to access instructions on the proper way to hang signs in their stores. When properly placed, the signs give customers a clear view of the entire store. There's a clear advantage in showing the store managers how to do it graphically on an interactive site, Carruthers said.

"I think we are definitely going to be using [Backstage Internet Studio 2.0] quite a bit," he said.

The only downside to the product, he added, is its "pretty high price" of \$999 for an enterprise version, which he said he hopes Macromedia can eventually reduce with more users.

Carruthers said the success of Shockwave products—first introduced in 1995 and a key factor in bringing interactive video and graphics to the Web—gives the new product more credibility.

At Toronto-based Grand & Toy, a subsidiary of Boise Cascade Office Products,

Inc., the product has been in limited use for a few weeks.

The company is putting an electronic ordering catalog that is used in its company network online with the tools, said

Alan Berdowski, vice president of marketing.

"It was a relatively easy process that took probably a month," Berdowski said. "The product has performed, but we're

cautious and have only set it up with a pilot customer."

That customer, a major Canadian university, can go online and procure any of 5,000 office products based on the pricing it has negotiated with Grand & Toy. If the pilot effort continues to go well, more customized customer catalog sites will be added in January, Berdowski said.



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INTERNET WORLD '96

Web site development tool takes it a step further

By Justin Hibbard

NETOBJECTS, INC. is about to test whether it can avoid the dreaded sophomore slump.

The year-old firm will release Fusion 2.0 at Internet World '96 this week in New York. It is the second version of the popular World Wide Web site development tool, which was unveiled three

months ago. Users praised Version 1.0 and welcomed the new features in Fusion 2.0, though one developer said the new release lacked the major improvements he sought.

Fusion 2.0 has been positioned as a site management and authoring tool. It will be able to import entire Web sites or portions of sites. Developers will be able to suck in pages created with other tools and apply Fusion 2.0's drag-and-drop site management features to them.

"In the past, Fusion was a wonderful way to lay out a site," said Bob Gill, an analyst at Gartner Group, Inc. in Stamford, Conn.

"If you wanted to author in HTML [rather than use Fusion's WYSIWYG editor], you had to import page by page. Now it's easier to use some other tool to author your pages and then import," Gill said. But Brian Howard, director of infrastructure technology at Pacific Bell Communications in Pleasanton, Calif., said Fusion 1.0's ability to import pages into Fusion's page templates already serves his needs.

"The thing I was really waiting for was improving database connectivity and collaboration," he said.

Howard said he found the new features useful, but said they seemed like minor modifications. "If you're going to call something a 2.0 release, I would think that it has to have some kind of major new feature they're adding."

A feature that caught Gill's attention was NetObjects NFX Components, a set of 10 components that developers can embed in their Web pages by using drag-and-drop commands. An especially useful component, Gill said, is the threaded discussion group, which lets users create a basic bulletin board system on a Web page. "You could use it as a simplified way for people to give feedback on products without having to submit forms," he said.

DIAGRAM FEATURE

The ability to print diagrams of sites was the favorite new feature of Scott Allen, a project manager at Genuity, a Bechtel company in San Francisco. "Clients appreciate it because you can show them the flow diagram and then just move the items around [in Fusion]," he said.

Allen also said he didn't see any new features that seemed like major revisions. But he said he noticed an overall improvement in the product. "Hands down, this is the best product I've ever run into that helps me do what I want to do," he said. "When [Release] 2.0 comes out, I'm expecting just a tighter version of what I've already got."

Fusion 2.0 will be available to Fusion 1.0 customers for free when downloaded from NetObjects' Web site, and for \$49.95 when ordered on CD-ROM with documentation.

Forrester Research, Inc. predicts that the Internet site-building software market will grow to \$1.2 billion by 1999.

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Two mergers in three years left FHP with fragmented information systems and soaring support costs. So Margolis and Bowen, side by side with teams from Digital and Microsoft, mapped out a broad integration strategy comprising a standardized PC desktop and network, a single transaction system (down from a dozen) and streamlined information access.

"We did an extensive evaluation of server platforms," says Bowen. "AlphaServer" systems running Microsoft® Windows NT™ Server scored highest in features and reliability—with the lowest cost of ownership." Those servers will ultimately support more than 50 FHP sites and thousands of Windows® based Digital PCs running Microsoft Office, all linked by a robust Microsoft Exchange Server messaging backbone.



SHAWN BOWEN
Information Services Director
FHP INTERNATIONAL CORP.

The results thus far: "Employees are empowered to create solutions to business problems," says Margolis, "and those solutions are easily shared across locations." Moreover, improved information access has meant better customer service—while FHP's benchmarked computing cost per customer has dipped to 20% below industry average.

Bowen credits the project's success not just to superior products, but to "the exemplary relationship we enjoy with Digital and Microsoft." Make this kind of success part of your company's future. Call 1-800-332-4403 today (U.S. and Canada only) or visit www.alliance.digital.com.

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HR to IS: Resistance is futile

► Blue Cross group acts solo in client/server switch

By Randy Weston

WHEN THE HUMAN resources department of Blue Cross/Blue Shield of New Jersey decided to migrate to client/server technology from a mainframe system, it didn't let anything stand in its way — including the information systems department.

Despite lacking the technological know-how — and heavy opposition from IS — Blue Cross' human resources officials met with vendors, chose an application package, trained themselves in development tools and installed the hardware and software.

IS "spent \$25,000 for an outside analyst to look at the project. The report agreed with us."

— Joseph Donald, Blue Cross/Blue Shield

"We tried to get the IS folks to go with us and look at vendors, but after one or two meetings they stopped going — so they were self-selected out of the process," said project leader Joseph Donald, director of benefits and compensation at the Newark, N.J.-based company. "They felt they could just enlarge the old [McCormack & Dodge mainframe] system. So they were left running the old system while we set up the new one."

IS officials from the company contacted by *Computerworld* didn't respond before deadline.

UP AND RUNNING

On Aug. 2, 1994, the old system was switched off, and the health maintenance organization's 60 human resources department employees began using PeopleSoft, Inc.'s human resources applications to manage 4,000 active employees and 18,000 retirees. And the project came in \$300,000 below its \$1 million budget.

The software has been upgraded four times since then and the hardware twice, with little help or at times outright opposition from IS. But Donald said the system was installed with barely any customization, and an outside consultant was brought in to customize a report-writing application that needed to be tied to the system.

"IS at the last minute said we couldn't buy anything without their approval," Donald said. "So they spent three weeks and \$25,000 for an outside analyst to look at the project. The report agreed with us."

From the beginning, Donald said, he knew conducting the project in such a hostile environment was sure to result in personnel losses. About a half-dozen people in his department and IS couldn't make the transition.

People quit, were fired or were transferred to departments that still ran mainframes. But other departments are migrating to client/server, and Donald said the mainframers are running out of places to hide.

"They are slowly moving themselves out of a job," Donald said. "The truth hurts, but they are still resistant, and we're getting ready to move financially over."

A small portion of the human resources staff worked full-time on the technology upgrade. The rest spent about 10% to 15% of their time during a five-month period on their specific tasks during the migration (see story at right).

ALL THE RIGHT MOVES

Judith Hurwitz, president of Hurwitz Consulting Group, Inc. in Newton, Mass., said Donald's department took the right approach — even if IS was willing to go along with the project.

IS departments are often more concerned with the technology and managing it than looking at its business purpose, she said.

"Even in traditional projects, where IT controls migration to a new platform, it's important to put the control of the project in the hands of the business unit," Hurwitz said.

Donald agreed. Besides getting the job done, one of the biggest benefits was that users programmed the configurations to the exact needs of their departmental functions, he said.

The knowledge base is coming in handy. Blue Cross/Blue Shield of New Jersey recently merged with its sister companies in Delaware and Connecticut. Donald's staff is working to add the new companies to the system.



Teamwork key to switch

The human resources department of Blue Cross/Blue Shield of New Jersey needed a well-planned structure for moving to client/server technology from a mainframe.

The migration took five months and was accomplished by three groups: a management team, a user team and a systems team.

Project leader Joseph Donald said the management team included the vice president of human resources and three human resources directors, including him. The management team wasn't involved in the daily operations but was held accountable for the project's overall success.

The user team — which was composed of direct users of the new system, including the labor relations manager — was trained in PeopleSoft's Tools I development software. The group was charged with configuring the software to meet its department's needs.

"Three of the seven people on the user team

had never turned on a PC before the start of this project," Donald said. "We made them go through a Word for Windows course to get them comfortable with point-and-click technology. Then they sat down and decided what would and what wouldn't go into the new system, and they made the configurations themselves."

Donald estimates they spent about 10% to 15% of their time during that five months on the migration project. The rest of their time was spent on their normal human resources-related duties.

The systems team worked full-time on the project and took on the duties usually handled by IS. The team was composed of several department managers, such as the manager of compensation. The team was also trained in PeopleSoft Tools II advanced development software. It advised the user team on how to do configurations, approve configurations and coordinate and moderate the project to make sure it was done on schedule. It also ran the upgrades and did the majority of training. — Randy Weston

Cyberclash over cybercash

By Lisa Picarille

ELECTRONIC COMMERCE on the Internet may be a reality, but users still don't have a high level of trust and security in online transactions.

Two companies last week separately announced plans to change that.

New York start-up CertCo LLC, a spin-off of Bankers Trust Co., unveiled a plan to create an infrastructure that will let banks conduct secure online transactions that are fully insured and can be audited.

CertCo also plans to release CyberCoin, which handles micropayments online. An example would be banks that charge users a penny to access their accounts. The digital payment scheme is based on a model that

combines public- and private-key cryptography in a system that distributes liability and security among several parties.

CertCo is expected to butt heads with CyberCash, Inc., which already has support from most major banks.

BANK ON IT

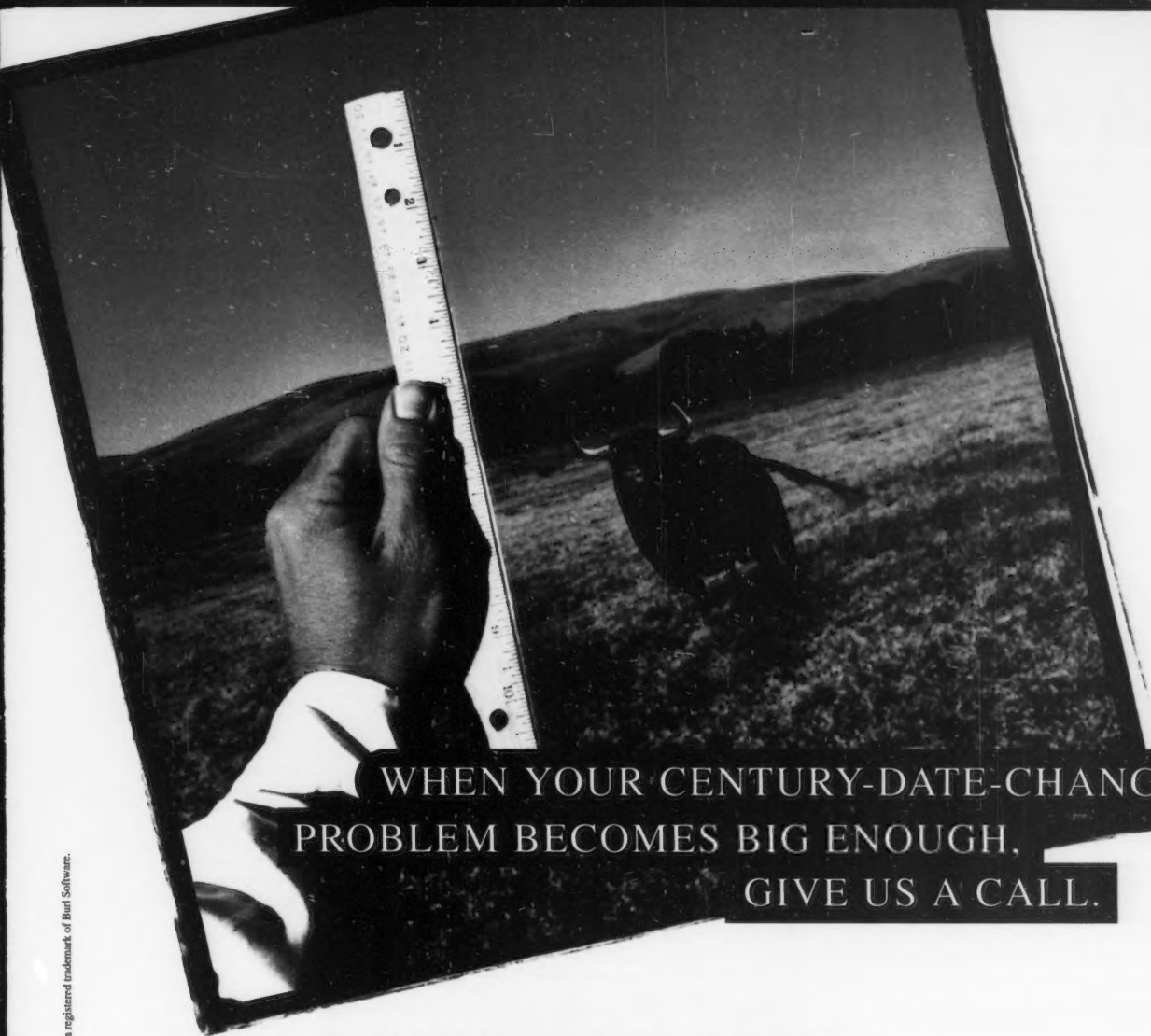
Past discussions of how businesses would bypass banking institutions and offer services directly are proving to be "nothing more than a fallacy," according to Chris Stevens, an analyst at Aberdeen Group in Boston. "Trust institutions are stronger on the Internet than anywhere else because they already have an established infrastructure for doing online transactions."

And VeriSign, Inc., which of-

fers a handful of digital authentication products, has announced partnerships with 10 companies that plan to invest a total of \$30 million in the Mountain View, Calif., firm. The funds will help VeriSign expand its line of digital identification applications.

VeriSign plans to embed digital authentication technology with key encryption into applications that are developed by its partners. The partners include Cisco Systems, Inc., Comcast Corp., First Data Corp., Gemplus Cards International, Intuit, Inc., Merrill Lynch & Co., Microsoft Corp., Reuters, AT&T Ventures and SoftBank Ventures, Inc.

"VeriSign has assembled an impressive array of partners, and they are obviously some big players," Stevens said.

A black and white photograph showing a hand holding a ruler vertically over a landscape. In the background, a bull is visible in a field. The image is tilted slightly to the right.

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Mail clients lose hold

CONTINUED FROM PAGE 1

Users are pushing for browser access to messaging servers because it lets them easily fetch mail from the road and access multiple mail servers.

What may be a boon for users could leave information systems managers cold. Concerns revolve around support nightmares, increasingly fatter browsers, application development issues and a lack of control over what users run on the desktop.

ents from mail servers," said David Marshak, a vice president at Patricia Seybold Group, a market research firm in Boston.

Mail clients are generally proprietary applications that exploit a full array of accompanying back-end messaging servers. Browsers, on the other hand, provide basic mail features, work with an array of mail servers and generally require fewer desktop resources.

The dominant messaging

works that will add some of the choicest features of mail clients to most browsers. And although Microsoft will soon begin offering Outlook, its mail and groupware client, it also plans to give users the option of running browsers with Exchange.

FLEXIBILITY IS GOOD

"The flexibility to go with either a Notes client or a browser is a good thing," said Tim M. Crawford, a technical project manager at National Semiconductor Corp. in Santa Clara, Calif., a large Notes shop. But touting browsers as light clients may not hold true anymore, he said.

"[Netscape's] Navigator, the browser we support here, can be fat if you add a lot of [specialized] plug-ins and goodies," Crawford said.

Also at issue is the fact that mail clients and Web browsers don't have the same mail server functionality. As a result, applications developed for a proprietary mail client can't be easily deployed to browser users.

"Before we do any development, we have to know whether our target users have Web browsers or Notes clients, and we'd like that to change," said Motti Goldberg, chief architect at US West, Inc. in Denver, a big Notes shop.

"The automated replication add-ons and Java applets [in the works from several messaging vendors] will be difficult to support and have a lot of security issues," said Blane Woodward, manager of IS at Northwestern Mutual Life Insurance Co. in Milwaukee.

vendors — Lotus Development Corp., Microsoft Corp. and Novell, Inc. — recently have announced plans to broaden the choice of clients that can run with their servers. Lotus and Novell have Java applets in the

WEIGHING YOUR CLIENT OPTIONS

Traditional mail clients

Pros

- Rich functionality
- Able to exploit back-end features of mail server

Cons

- Expensive
- Fat client

Web browsers

Pros

- Lightweight client
- On many desktops

Cons

- Can't exploit all the back-end features of mail servers
- Requires frequent upgrades

On the plus side, IS managers applauded client choices for mail servers and said browsers will work for many users.

Either way, they are bracing themselves. "We are moving toward the separation of mail cli-

INTERNET TECHNOLOGY

HP creates framework for building intranets

By Jaikumar Vijayan
and Mitch Wagner

HEWLETT-PACKARD CO. last week fleshed out details of an initiative to help companies deploy Internet technology.

HP's "electronic business framework" incorporates new and previously announced Internet-related products and services — including third-party products — that it will help integrate into corporations.

"They certainly seem to have many of the capabilities that are going to be necessary to help customers develop electronic commerce sites," said Tom Kucharvy, president of Summit Strategies, Inc. in Boston.

"But the packaging is confusing. It would have been a lot clearer if they had actually demonstrated how exactly some of the things they announced are going to be employed," he said.

"They openly showed us what they are doing. We understand the architecture, and we are pretty pleased" with HP's Internet strategy, said George Steinhoff, vice president of group systems at Blue Cross of California in Woodland Hills.

Blue Cross is upgrading several customer service centers. The company is using a World Wide Web-enabled product that

HP'S 'NET MOVES WILL:

- Develop products and services to help companies deploy Internet technology
- Work with Microsoft to develop a version of NetPC and Web-enabled PC management software
- Work with Oracle and Verifone to develop products for secure electronic commerce
- Web-enable existing HP products and services

integrates the Internet with telephony-based customer-service offerings.

COMING SOON

The following products are slated to be delivered by HP in the first quarter of next year:

- HP's Process Management Development framework for intranets, which will let groups create and adapt solutions that map to and evolve with business-process requirements.
- HP's Internet Marketing framework, which improves communication among customers and business partners over the Web by delivering personalized product and service information.

- HP's AdminFlow framework, for business-to-business Web commerce, which lets firms document, automate and deploy scalable administrative business processes via standard Internet communications protocols.

Third-party Web tools can be snapped in to each of the frameworks. HP last week said it has also Web-enabled several of its products. It will soon ship an Internet-ready version of its Smart Contact software. The product integrates the Internet with telephony-based customer-service offerings.

HP also announced plans to jointly develop with Verifone, Inc. a range of Internet-based secure-payment products. HP and Verifone announced a joint development alliance earlier this year.

Make Systems beefs up suite of network analysis tools

By Patrick Dryden

MAKE SYSTEMS, INC. this week will enhance its suite of network analysis and design tools to help corporate planners prepare their networks for the impact of transaction-oriented client/server applications.

Such applications require constant availability and guaranteed response time.

And corporations need such tools to understand connectionless networks and check up on transaction response times.

Release 2.6 of NetMaker XA tackles problems such as tracking overall performance, migrating SNA traffic onto routers and modeling frame-relay circuits to reveal the most cost-effective connections.

Those new capabilities ad-

dress demands from corporate users deploying critical Baan Co., PeopleSoft, Inc. and SAP AG R/3 applications, said Steve Howard, president of Make Systems in Mountain View, Calif. Traffic simulations for these applications by an aerospace firm, which asked to remain anonymous, revealed delivery problems that would cripple reliability as soon as managers extended access beyond regions to users across the wide-area network.

At R. R. Donnelley & Sons Publishing Corp., the capabilities of NetMaker XA 2.6 specifically help predict how new applications will perform on the 120-router frame-relay network and how they will affect such applications as electronic mail and production planning, said

"We needed a way to see how higher-traffic levels will affect production planning applications and E-mail." — Asoka De Saram, network engineer, R. R. Donnelley

Asoka De Saram, network engineer at the Chicago-based printing company.

"Now we don't have to plug in a probe or analyzer at every site to monitor traffic and router interfaces," De Saram said. NetMaker XA automatically gathers basic utilization information without probes and presents graphical baseline activity reports. It also models frame-relay scenarios, "so we can optimize performance and cost," he said.

Modeling and planning software is also available from such vendors as CACI Products Co. in La Jolla, Calif., and NetSys Technologies, Inc. in Palo Alto, Calif. With this release, Make Systems has caught up in the frame-relay and SNA design areas, noted John Morency, a principal at The Registry, Inc., a consultancy in Newton, Mass.

Pricing for NetMaker XA modules ranges from \$6,995 to \$14,995.

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PeopleSoft adds Red Pepper to mix

By Randy Weston

SAN DIEGO

PEOPLESOFT, INC. plans to spice up more than just its manufacturing applications with the technology gained from acquiring Red Pepper Software Co.

PeopleSoft in Pleasanton, Calif., is looking at ways to use the constraint-based planning engine developed by Red Pepper in other applications, such as human resources applications for employee scheduling, officials said last week at the annual PeopleSoft user group conference here.

SPICY DEAL

PeopleSoft in October paid \$219 million for Red Pepper, with the intent of embedding Red Pepper's ResponseAgent planning software in its products.

The technology is used by

manufacturing firms for supply-chain and inventory management.

The software alerts users when supplies are getting low based on a preset plan.

MORE USES

Red Pepper and PeopleSoft officials don't see why the same technology couldn't be used for managing people in industries such as health care, where people are the main commodity.

"In hospitals, you have a finite capacity of nurses, physicians, operating rooms and things you do on patients. It looks an awful lot like the standard capacity constraints manufacturing plants deal with," said David Obershaw, director of business development at Red Pepper in San Mateo, Calif.

Obershaw said the constraint engine was designed to make

quick adjustments to a preset schedule. In the hospital example, if a major incident such as the Oklahoma City bombing occurred, the software could be

If a major incident such as the Oklahoma City bombing occurred, the software could be used to quickly reconfigure staffing, supply and space constraints.

used to quickly reconfigure staffing, supply and space constraints.

No immediate product releases are planned. Obershaw said users should expect to see the technology, possibly in 1998, in the release of PeopleSoft 8.

The company is rolling out

Version 6, and Release 7 should be out by the end of next year.

"Whenever you are scheduling people or those kinds of resources, it is inherently a changing environment," Obershaw said. "Red Pepper is architected around constraints, and those constraints could be anything from customer delivery dates to employee schedules."

Henry Morris, an analyst at International Data Corp. in Framingham, Mass., said he expects PeopleSoft to come up with more uses for the planning engine.

"This clearly makes sense in other endeavors," he said. "Wherever you have human capital, you would be able to uti-

lize this technology."

PeopleSoft is also making big pushes into government and higher education, where the software could be used to handle student schedules.

HUMAN RESOURCES

At last week's user conference, a coalition of employment agency industry officials met to discuss what they wanted out of PeopleSoft applications.

The main commodity of many industries is people, said Buck Buchanan, vice president of information systems at Snelling & Snelling, Inc., a \$300 million employment agency in Dallas.

He said a scheduling engine in human resources applications would come in handy for tracking employees sent to work in companies around the world.

Legacy mini users loyal to the end

CONTINUED FROM PAGE 1

long as possible.

In fact, 64% of proprietary minicomputer users said they don't intend to immediately migrate from their

LEGACY SYSTEMS

current platforms, according to the survey of 100 corporations.

Poll respondents said the systems meet their business needs and applications requirements. And users said they are hesitant to incur the costs involved in moving to an untested platform (see chart).

"There is a very large segment of users out there who are sitting back and saying, 'I got this computer, it works just fine, it never breaks, so why the heck change anything?'" said Ross Duncan, chief operating officer at Integration Alliance Corp. a distributor and reseller of HP 3000 systems in Englewood, Colo.

But a rising tide of relatively low-cost Windows NT and Unix systems, lack of software, wanting vendor support and pressure from management all are making it harder for users to justify their actions.

"We are at a crossroads here in our company where we have to decide whether we want to stay with our legacy system or move," said Steve Pounds, controller at Security Forces, Inc. in Charlotte, N.C.

The company's Data General

Corp. hardware works fine, but getting support for its custom applications software is getting to be a challenge.

Pounds said. He said he is checking to see if there are any packaged Windows applications that can do the same job.

STAY OR STRAY?

Top three reasons why users are sticking with minicomputers

1. They do the job
2. Adequate for applications
3. Service and support

Base: 64 minicomputer* users

Top three reasons why users are migrating off minicomputers

1. Too costly to maintain and support
2. Old system has been maxed out
3. Lack of new applications

Base: 35 minicomputer* users planning to migrate

* Digital VAX, Wang VS, IBM AS/400 and Digital Eclipse

Source: Computerworld survey

"Such issues are a problem, but what has happened over time is that customers have found a way of staying alive," said Donald Winterhalter, an independent consultant for Wang Laboratories, Inc.'s VS systems in Plaistow, N.H.

For instance, Wang user Lamar Logan, CEO of Logan Lumber Co. in Tampa, Fla., relies heavily on third-party software and utilities vendors for almost all support.

"When Wang filed Chapter 11 a few years ago and a lot of people around the country panicked, we looked at our hardware and software. We found that it [could be supported], even if Wang went out of business," he said.

EASE OF USE

Longtime minicomputer users also said the proprietary systems are relatively easy to maintain, upgrade and write programs for.

"The best thing about these systems is that you don't need to learn Klingon or have a space science degree to operate the machine," said Mike Berkowitz, HP 3000 systems manager at Guess, Inc. in Los Angeles.

"I could fall asleep like Rip Van Winkle in 1975 with a tape I made of programs and data, wake up 21 years later, put in the tape, use the exact same com-

Life at the end of the line

If other reasons don't force users of older minicomputers to migrate, lack of vendor support almost certainly will in the long term, analysts said.

During the past few years, almost all major minicomputer vendors have shifted their marketing and development dollars away from proprietary boxes to Unix and Windows NT systems.

And the trend is only going to accelerate.

For instance, Digital Equipment Corp. and Hewlett-Packard insist they will continue to support their VAX and HP 3000 platforms, respectively, as long as there is demand for them to do so.

But despite periodic product refreshes, both companies long ago stopped actively marketing those products. Meanwhile, Data General has discontinued earlier product lines and migrated to Intel Corp.-based architectures.

"Users don't have a whole lot of choice. If they are being forced to move, then obviously they are going to move," said Ross Duncan, chief operating officer at Integration Alliance.

"In many instances, customers may migrate just out of fear that their vendor may no longer be there when they are needed," said Donald Winterhalter, an independent consultant for Wang VS systems in Plaistow, N.H. "It is hard to make long-term plans when you think you are the end of a product life cycle."

—Jaikumar Vijayan

mand and run them," Berkowitz said.

Of course, newer technologies such as Unix and Windows NT are eating away at the installed base of proprietary minicomputers. "More than an indictment of the hardware, most of the migration is happening because of application unavailability" on older platforms, said Ron Seybold, editor of "The 3000 News Wire" in Austin, Texas.

Other factors pushing users to new platforms are fears about long-term vendor support (see

story above), the relative lack of interoperability with current environments, lack of applications and trained staff, and hardware capacity issues.

Perry said Avery Dennison is on the verge of moving to a Unix platform in the next 18 months because the HP 3000 simply isn't "integrated with other applications as well as it could be."

The migration won't be easy, though. "I am dreading the day when we actually have to move to a Unix box. I think I will cry," Perry said.

U.S. digital copyright proposals trigger debate

By Gary H. Anthes and Thomas Hoffman

SOFTWARE VENDORS, users and Internet service providers squared off in Geneva last week over U.S. proposals to bring copyright laws into the Digital Age.

U.S. publishers of software, books and other intellectual property are supporting Clinton administration proposals to strengthen copyright laws worldwide in order to protect publishers from electronic piracy.

But the proposals could be a double-edged sword for IS managers. Matt Cutler, president of the Webmasters Guild in Cambridge, Mass., said IS people who manage World Wide Web sites are potentially caught in the middle. If they are publishing original material, they don't want to see that posted elsewhere without permission. On the other hand, they don't want to be held responsible for copyright violation on their sites or for actions of their employees that they may not be able to detect or control.

"The 'net cuts both ways in this regard," Cutler said. "These issues have a long way to go before they are cleanly resolved."

"We believe the Clinton administration is on the verge of a serious mistake by advocating ratification of these treaties."

— Ed Black, CCIA president

Users worry that international treaties being proposed by the Clinton administration to the 160-country World Intellectual Property Organization might tighten the screws on the free flow of information over the Internet.

Internet service providers, meanwhile, fear that new copyright laws might make them liable for copyright infringement that is beyond their ability to detect or control. They also said policing the content of traffic over their services could lead to invasions of legitimate users' privacy.

The providers "feel they're going to be caught in the middle of these disputes," said Ronald Abramson, chairman of the intellectual property and technology law practice group at Hughes, Hubbard & Reed LLP in New York.

He pointed to the Church of Scientology's recent lawsuit against Netcom On-Line Communications Services, Inc. for infringement. Internet service providers "don't want to be the deep pockets in these situations," Abramson said.

"We believe the Clinton administration is on the verge of a serious mistake by advocating ratification of these treaties," said Ed Black, president of the Computer & Communications Industry Association (CCIA) in Washington.

The CCIA and others said the U.S.

proposals go much too far in favor of copyright owners. For example, one provision makes it a copyright violation to make even temporary copies of material in a computer's memory while it is being viewed by an Internet browser.

But groups that support the U.S. proposals, such as the Business Software Alliance (BSA) in Washington, say critics are misreading the provisions that deal with making temporary copies on a user's computer. "Temporary copying is au-

thorized, either explicitly or implicitly," the BSA said in a statement.

The negotiations in Geneva will run an additional two weeks. Any treaty would have to be approved by the U.S. Congress.

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Have your browser call my browser

By Barb Cole

PARALLON COMMUNICATIONS, INC. this week will announce software for companies that seek to get basic collaboration applications up and running on their intranets.

Netopia Virtual Office runs on desktop computers and provides a graphical application that can be accessed by colleagues and trading partners via World Wide Web browsers.

Visitors to a Netopia Virtual Office can leave voice or text messages, exchange

files, participate in chat sessions or collaborate on documents.

The interface includes an office door, where visitors can affix electronic sticky notes; a conference room; in and out baskets; and a place to drop business cards.

"It's an easy way to do collaborative in-

tranet applications," said Tiernan Ray, an analyst at Technologic Partners, a consultancy in New York.

Netopia also can be used by individuals for remote access to retrieve — via browsers — files and other information stored on their PCs.

"I can see [Netopia] being used in groups or departments that don't need full-blown groupware but want to collaborate on the Web," said an information systems executive, who didn't want his name used, at Bear Stearns & Co., an investment bank in New York.

SMALLER APPS

Netopia isn't likely to unseat traditional groupware. For instance, while users can have multiple visitors in their Netopia office, the software supports only point-to-point collaboration.

Netopia will be integrated with Microsoft Corp.'s NetMeeting collaboration system for users who need to work in large groups. There are plans to integrate with leading groupware products as well.

Netopia Virtual Office will ship in the first quarter and will cost \$69.95.

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ONLINE PROTECTION

Software copies live databases

By Matt Hamblen

WHEN MCI Communications Corp. needed to make copies of customer information globally available in an instant, it turned to a small storage vendor for a solution.

For nearly a year, MCI has used Storage Computer Corp.'s online data protection software, OmniForce, at its San Jose, Calif., service center, one of four MCI centers worldwide.

Based on OmniForce's initial success, MCI hopes to deploy the software worldwide within six months, according to MCI engineers.

And Nashua, N.H.-based Storage Computer will announce today that OmniForce will be generally available in January. The software will cost between \$30,000 and \$90,000.

MCI plans to use OmniForce to duplicate four exact copies of live data in each of its four customer service centers worldwide, MCI engineers said. The purpose is to make data consistent so trouble calls can be serviced on a global basis. OmniForce's ability to function in any SCSI system made it attractive to MCI, said Jim Parkhurst, a senior staff engineer at MCI.

The ability to customize mirroring of data at multiple sites and multiple levels is a unique feature of OmniForce, according to Thomas B. Lahive, a senior analyst at International Data Corp. in Framingham, Mass.



Impactdata unveils network storage products. Page 51.

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RadioLAN back on air with wireless hub

By Laura DiDio

A YEAR AFTER halting production of its first product before it shipped, RadioLAN, Inc. is back in business.

The wireless start-up's RadioLAN 10M bit/sec. Ethernet wireless hub for

intrabuilding connectivity is shipping.

The portable desktop device provides users with shared Ethernet connectivity over a narrow-band transmission in the 5.8-GHz frequency band.

The RadioLAN network links users for approximately the same cost as shared

10Base-T Ethernet hubs — less than \$500 per node, company Chairman and CEO Mike Clair said.

Targeted at campus LANs and small and remote office environments, RadioLAN obviates the need for users to install expensive wires, Clair said. The typical

range for the RadioLAN hub is 120 feet in an office and up to 300 feet in an open, unobstructed area.

Peter Edgar, senior network analyst at the main library of the University of British Columbia in Vancouver, said the portable RadioLAN proved the ideal solution when historic preservation restrictions prevented him from rewiring the library for Internet access.

"RadioLAN gives us simple, high-speed Internet access at an affordable price point," Edgar said.

Analysts said much of RadioLAN's appeal is its simplicity and speed, which set it apart from other wireless offerings.

"It's also a big money-saver because if your business

vacates the premises, there are no wires to take with you, and you haven't lost your investment in existing equipment," said Skip MacAskill, an analyst at Gartner Group, Inc. in Burlington, Mass.

MacAskill said wireless hub-based networking is a technology whose time has come. He added that RadioLAN is the only firm shipping a full-blown wireless Ethernet product. But he warned that the company can't afford to fail a second time.

The product, originally slated to ship in May 1995, was pulled out of beta testing because the wireless signal was unreliable. At that point, the company shut down and underwent an almost complete turnover of management and engineering.

"RadioLAN has to come out smoking," MacAskill said. "They're lucky to get a second chance because no other firms have stepped in with a product to drive the wireless market. The refocus on the remote, small and home offices and the campus environment is good because it targets what will be a very significant networking market over the next several years."

The RadioLAN/10 consists of a PC adapter, a portable high-frequency radio transceiver with a built-in, omnidirectional antenna and the RadioLink wireless operating system, which is fully interoperable with Novell, Inc.'s NetWare, Microsoft Corp.'s Windows NT and Banyan Systems, Inc.'s Vines.

The adapter is ISA bus-compatible and comes in two versions. The Wireless Interface Node gives users a single wireless connection and costs \$499. The Wireless Access Point version lets users connect to a wired 10Base-T backbone network. It has one wireless connection and one 10Base-T connection and costs \$799.

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• Alliances to tackle electronic commerce challenges

Going vertical for Internet business

By Mitch Wagner

LIKE CHILDREN holding hands to cross a busy street, big businesses are banding together to develop industry-specific systems and standards for Internet commerce.

Companies in heavy-equipment manufacturing, the automotive industry and electric power generation are aligning to solve electronic commerce problems specific to their industries.

For example, last month, the InfoTest International consortium demonstrated technology to build global links to 36 manufacturing companies and government agencies, including Caterpillar, Inc., Texas Instruments, Inc. and Hughes Electronics, to share business and manufacturing data.

The consortium is working to develop and standardize technologies for business-to-business sales, sharing research data, group collaboration and videoconferencing over the Internet.

Members of InfoTest, like other electronic commerce consortia, hope that pooling re-

search dollars, technical expertise and negotiating clout with vendors will jump-start Internet commerce and save information technology dollars.

"You leverage your expenses and, probably more important than that, you leverage your expertise," said Bill Petefish, manager of information systems at the \$16 billion Caterpillar in Peoria, Ill.

Next month, some 250 public electric power utilities in 32 states plan to go live with a system for trading excess power in the Joint Transmission Services Information Network.

"Users get to test the options

"Railroad car manufacturers don't have to get involved in proprietary track widths and gauges."

— Michael Goulde, Patricia Seybold Group

without having to run the risks themselves," said Troy Eid, executive director of InfoTest.

And the Automotive Industry Action Group (AIAG) is working on a private Internet network to link automotive companies nationwide to share business and manufacturing data. The network will be used for electronic data interchange, sharing large files of engineering data and collaboration.

PILOT PROGRAM

The effort will begin with a second-quarter 1997 pilot that includes Chrysler Corp., General Motors Corp. and Ford Motor Co. as well as a limited number of business partners. Organizers hope to extend the network to hundreds of companies by the middle of next year.

A major benefit that these vertical industry organizations hope to create is standardization of business processes and technology.

Companies that do business with one another would be able to rely on a common set of applications for engineering, collaboration and selling, and they

would know that those applications work reliably over the Internet.

"There's a common look and feel," said Frank Royster, director of corporate services at Southwest Power Pool, Inc., a member of the electrical power company network. Seven World Wide Web sites set up by the network — serving different companies — will share a common user interface and behavior.

"That's the same as in any industry," said Michael Goulde, an analyst at Patricia Seybold Group in Boston. "Railroad car manufacturers don't have to get involved in proprietary track widths and gauges for the different railroad companies they sell cars to."

"You can roll in suppliers, customers and other business partners," Petefish said. "Nobody I know, except maybe the federal government, can afford a private network that goes around the world."

Some of the co-operatives may bring benefits extending beyond the organizations' vertical industries. The AIAG

Where things stand

→ JTSIN, an alliance of electrical generating and transmission companies, will have information on excess electrical power for sale by January and hopes to be doing business deals online by late next year.

→ The AIAG, an alliance of automotive companies, is selecting an "overseer" to manage the assembly of its private network that use Internet technologies.

→ InfoTest International, a manufacturing alliance, last month demonstrated its Internet network for real-time and collaborative applications and will add additional features, including security, throughout the year.

automotive alliance plans to accredit Internet service providers reliable enough to provide service for its network and will make those findings public so that all companies looking to do business on the Internet can benefit.

Likewise, InfoTest hopes to develop a rating system for Internet service providers, with different grades of service for different applications.

NT monitoring gains a broader view

► Module allows status scanning across domains

By Patrick Dryden

NETWORK ADMINISTRATORS will gain a much-needed view into their Windows NT systems with a module that BindView Development Corp. in Houston will introduce this week for its BindView Enterprise Management System.

Currently, administrators must focus on one server or one domain of servers and stations at a time to check the resources, configuration and security of Microsoft Corp.'s Windows NT operating system.

From a BindView EMS console, administrators will be able to scan automatically the status of all Windows NT systems across domains, as well as check

up on servers running Novell, Inc.'s NetWare.

"This frees up a lot of my time because I don't have to jump among different NT tools and domains and do lots of the computation myself," said beta tester Richard Schwartz, network administrator at Corpus Christi Natural Gas Co. in Houston.

"Now I can reach across the WAN to see my entire network of Windows NT servers."

— Richard Schwartz, Corpus Christi Natural Gas

Schwartz said he can query BindView EMS to analyze disk space utilization and file ages on 15 servers across three domains.

He said he gets one clear report that highlights "the sloppy users."

Microsoft promises to simplify large-scale Windows NT management by combining domains in a tree structure — like Novell's directory service —

through its Active Directory for Version 5.0, due late next year, said Shilpa Agarwal, an analyst at Giga Information Group in Cambridge, Mass.

FOCUSED VIEW

"That will change the entire management scene for Windows NT, but Microsoft is not there yet," Agarwal said. "BindView already provides a more unified view of fragmented domains."

An enterprisewide view could ease management of more than 200 Windows NT servers throughout Houston-based Pennzoil Co., said Sue Darte, connectivity specialist at the company.

"That definitely sounds helpful to examine services through an exception report, instead of waiting for users to call or examining each server," Darte said.

The module ships next month.

Pricing will vary depending on the number of servers and workstations to be monitored. BindView EMS costs \$695 per console.

Middleware safeguards data transactions over the Web

By Tim Ouellette

NEW ERA OF NETWORKS, INC. this week will announce message-oriented middleware that ensures delivery of transactions initiated by Web browsers.

Message-oriented middleware transports data between different applications by way of queued messages, so if the destination server is down the transaction is not lost. Instead, the message waits in a queue.

NO ADD-ONS

The new Neonweb software installs on any Web server and requires no Web browser add-ons. Neonweb turns the Web server into a messaging node connected to the Englewood, Colo., firm's Neonet 3.0 middleware.

As a result, users buying stocks over the 'net, for example, can be guaranteed delivery of the transaction to whatever back-end system is processing the purchase, even if the browser loses the Internet connection.

Other middleware vendors are also looking to bring Web data into their messaging systems. For example, IBM is developing Java hooks for its MQSeries product.

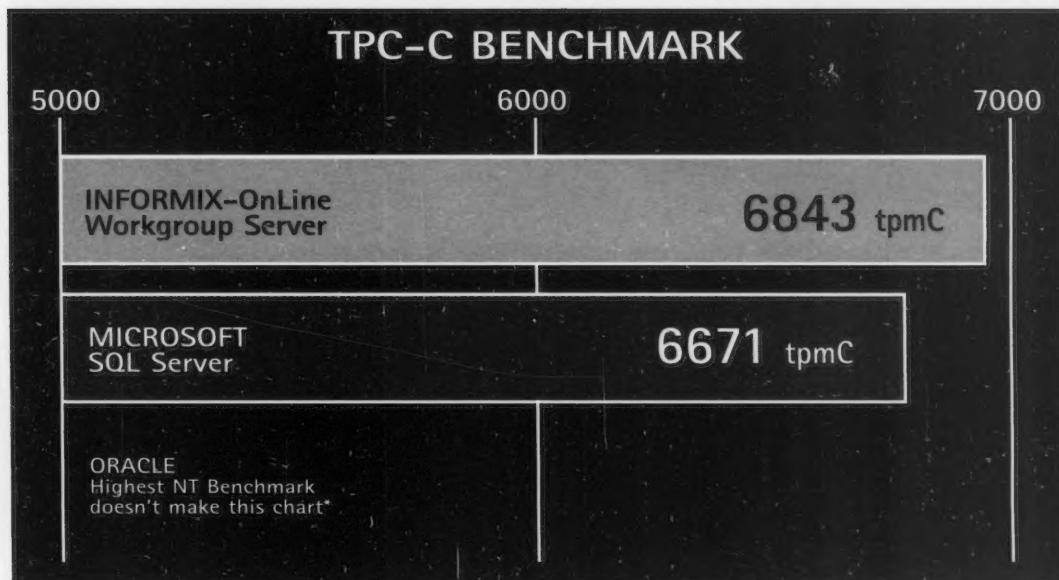
Analysts say New Era's inclusion of a rules engine helps it more easily adapt to new data types such as Web-based files.

The engine can translate new data formats between applications, while competing products such as MQSeries require specific gateways to move data out of specific kinds of applications, said John Rymer, a senior analyst at Giga Information Group in Cambridge, Mass.

Jane Grad, vice president of information technology at Ingalls Health Systems, hasn't tried Neonweb. But based on New Era's Internet integration done for the Illinois health care network, she said she expects the product could help.

Neonet 3.0 is shipping now; it starts at \$18,000. Neonweb will be available next month.

Introducing the new record holder in database performance on an NT Server.



TPC-C benchmark results based on client/server application performance on a Compaq ProLiant 5000/6/200 Model 2 running Microsoft Windows NT Server 4.0.
*Oracle 3066 tpmC benchmark based on Windows NT 3.51 on Compaq ProLiant 4500/133 Model 2c/s. Informix OnLine 7.3 \$100/tpmC available 2/1/97.
Microsoft SQL Server \$90/tpmC available 12/1/96. Oracle 7.3 \$198/tpmC available 6/30/96.

INFORMIX® OnLine Workgroup Server. Proven the best database for Windows NT®.

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New Memo - Lotus Notes



To: Joseph Chabot
cc: Maria Ammorat, Michael Vital
bcc:
Subject: Upcoming Sales Conference

Joseph.

Here are the latest figures for the conference in Cambridge the week of the 14th.
Please fill in your numbers for Q4.

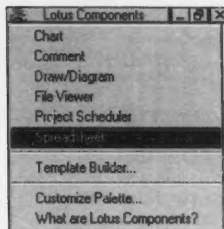
	A	B	C	D	E	F	G
1	Sales Forecast (in 000's)						
2							
3	Region	Q1	Q2	Q3	Q4		
4	Asia	\$27,435	\$29,800	\$28,250			
5	Europe	\$21,560	\$24,457	\$25,731	\$39,365		
6	N. America	\$32,400	\$33,654	\$34,999	\$39,365		
7	Total	\$81,395	\$87,911	\$88,980			
8							

Let's get this wrapped up in the next couple of days. Thanks in advance.

- Chart
- Comment
- Draw/Diagram
- File Viewer
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- What are Lotus Components?

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Computer Industry

Briefs

Bay CFO steps down

Just when turmoil appeared to have ended at Bay Networks, Inc., the internetworking vendor announced last week that Chief Financial Officer William J. Ruehle plans to resign once a successor is found. The Santa Clara, Calif., maker of switches, hubs, routers and remote access gear recently ended a six-month search to replace CEO Andy Ludwick with former Intel Corp. executive David House. And Chairman Paul Severino recently relinquished his post. Ruehle joined SynOptics Communications, Inc. in 1987. In 1994, SynOptics merged with Wellfleet Communications, Inc. to form Bay Networks. "I decided that after nearly 10 years, it was time to transition to something new," Ruehle said in a prepared statement.

Fore tames Nemesys

ATM switch powerhouse Fore Systems, Inc. plans to bulk up its video networking products with the acquisition of Nemesys Research Ltd. in Cambridge, England. Fore didn't disclose the value of the sale. With Fore's Asynchronous Transfer Mode (ATM) switches and Nemesys' video coders/decoders, the vendors intend to provide users with everything needed to set up super high-speed video networks for distance learning, telemedicine and videoconferencing applications. Nemesys will become Fore's video and audio systems development group.

Riechers cashes out

After one year at CyberCash, Inc., CFO Gene Riechers late this month will leave the company to head a new venture capital fund. CyberCash is a developer of software and services for financial transactions over the Internet. Riechers will become the managing director of Pegasus Venture Partners L.P., an affiliate of Fiedman, Billings, Ramsey & Co. The firm will focus on early- and midstage technology companies, Riechers said, particularly those involved in Internet and electronic commerce development.

• Internet push takes center stage

Microsoft widens inner circle

By Laura DiDio

IN A BID to better address the Internet and intranet markets, Microsoft Corp. last week revamped and expanded its top management team.

The software giant replaced its seven-member Office of the President with a nine-member Executive Committee.

New to the executive committee are senior vice presidents Jim Allchin and Brad Silverberg, who have been at the forefront of Microsoft's operating system and network operating system product launches during the past two years.

FINDING SYNERGY

A Microsoft spokeswoman said the management realignment was designed to bring synergy to the company's operating system, desktop application and Internet efforts. "Customers have been telling us for some time that they want to see greater in-



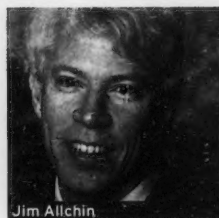
Brad Silverberg

Heads Internet client and applications group

tegration among our various product groups. The Executive Committee will let us create a structure to meet those technical challenges," the spokeswoman said.

As head of the Personal and Business Systems group, Allchin will assume responsibility for server application programming development, the Microsoft spokeswoman said.

And Allchin will take over some of the Internet server development, including the Com-



Jim Allchin

Leads server development, some Internet projects

mercial Internet System (formerly code-named Normandy) and the Merchant Server. Both of those products were under Silverberg's control.

Silverberg, who oversaw the Windows 95 launch last year, will lead Microsoft's Internet client and applications group. He also retains authority over the Microsoft Office suite of desktop applications, the tools division, the World Wide Web authoring product unit and developer relations.

"It's a good move because Microsoft hasn't done a great job of integrating their various product lines. The addition of veterans like Allchin and Silverberg to the management team should help them to get their house in order and align the products," said Fred Wadler, an analyst at Guilford Partners, Inc. in Chicago.

RAPID EFFORT

Until recently, Microsoft's Internet initiatives — particularly its Web browser — have lagged significantly behind market leader Netscape Communications Corp. But the Redmond, Wash., firm is working furiously to catch up via enhancements to its browser and Internet Information Server, which are integrated into the core Windows NT Server 4.0 platform.

Allchin and Silverberg will continue to report to Paul Maritz, Microsoft's group vice president.

IBM plans expansion of disk drive operations

► Strong demand prompts \$1.32B investment

By Tim Ouellette

FORTY YEARS after creating the disk drive, IBM is celebrating the voracious user appetite for storage by pumping millions of dollars into its storage manufacturing business.

IBM last week said it would invest \$440 million in a new plant in Thailand and in additional research at the San Jose, Calif., headquarters of its disk drive division.

That brings IBM's total 1996 storage investment to \$1.32 billion.

FAST GROWTH

IBM's investment reflects the explosion in the disk drive industry as a whole, said James Porter, president of Disk/Trend, Inc. in Mountain View, Calif. Some 89.5 million drives

that they can't make components fast enough to fill orders [CW, Dec. 2].

Wall Street analysts said IBM's investment will help it keep pace with competitor Seagate Technology, Inc. in Scotts Valley, Calif., in high-end storage disk drives.

IBM last month doubled operations at its Singapore plant, which produces disk drives for large storage subsystems and servers.

IBM officials said the money is also going to improve its OEM business of selling disk drive parts to other disk drive makers, an area contested by Milpitas, Calif.-based Read-Rite Corp.

DISK DRIVE TURNS 40

IBM created the first disk drive in 1956; the market has advanced quite a bit since then

	1956	1996
Price per M byte	\$10,000	25 cents
Size	Two refrigerators	3½ inches
Capacity	5M bytes (4 college textbooks)	Approximately 1G to 2G bytes (87 college textbooks)

Former NEC CEO dies at age 89

KOJI KOBAYASHI, longtime leader of NEC Corp., Japan's largest PC maker, died last week at age 89.

Kobayashi joined NEC in 1929. Since stepping down from the CEO position in 1988, he had been the company's honorary chairman.

Kobayashi joined NEC after graduating from Tokyo Imperial University, now known as the University of Tokyo. He received a doctorate in engineering from the university in 1939.

He became a director at NEC in 1949, executive vice president in 1961, president in 1964 and chairman and CEO in 1976. He also held numerous posts in industrial, professional and government-related organizations.

In the late 1970s, he coined a watchword for NEC — "C and C" — to promote integration of communications and computers.

The company plans a memorial service at Zojoji Temple in Tokyo Dec. 24.

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EDITORIAL

Creepy crawlers As if hackers and surfing employees weren't enough, corporate 'net

cops now have to worry about "software robots" unleashed in cyberspace.

These are smart chunks of code — also known as agents, bots, spiders or crawlers — that scurry about the Internet doing personal and business errands. Once trained, they can shop, gather research and execute transactions.

There are already several news-filtering agents, and Andersen Consulting has developed BargainFinder,



which shops online for music CDs. Another agent waits at the Federal Express package-tracking site and alerts you when your package has been delivered. Soon we'll schedule appointments by having agents check our calendars.

"Let's do lunch. Have your agent call my agent."

But there are some downsides. A typo could lead to the delivery of 200 pizzas with anchovies or an endless loop that crashes Internet servers. Once released, a buggy bot is hard to recall. And when an employee unleashes an agent, your company is liable for whatever mischief it gets into.

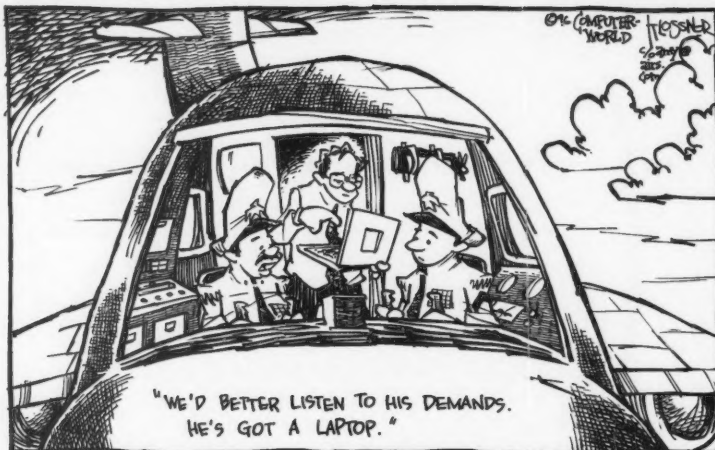
Meanwhile, swarms of agents will be visiting your World Wide Web site, making rapid-fire requests that can overwhelm the server. Worse, what if that mild-mannered visitor is really on a hacking expedition or becomes a double agent?

The early signs aren't good. Hate-mongers in September sent out "cancelbots" to erase 30,000 Usenet messages about gays, Jewish groups, Muslims and feminists. And 'net chat rooms are plagued by bad-bot eruptions from chatterbots, warbots, clonebots, floodbots, annoybots, hackbots, spybots and gossipbots.

Some work is being done on bot ethics (see www.botspot.com), but don't jump on the agent bandwagon until we're sure a world of "good viruses" won't turn bad.

Mitch Betts.

Mitch Betts, associate editor, news
Internet: mbetts@cw.com



LETTERS

Proposed change to code concerns all software users

I JUST FINISHED reading senior editor Allan E. Alter's Oct. 28 editorial, "IS wake-up call." I share his view that everyone associated with purchasing, using and managing software ought to be concerned about proposed Article 2B to the Uniform Commercial Code.

Even though the Society for Information Management (SIM) represents users and has undertaken a review, it is just one group of volunteers with modest resources. Every major software user group in the U.S. should seek to enlighten its members about this subject now. Software users need to act, and they need to act soon.

Related material can be found by searching "Article 2B" on the Internet. Users can also submit comments in a variety of ways — either at the Web site (the proposed article can be examined at www.lawlib.uh.edu/ucc2b) — or through the SIM's IT Procurement Working Group or the American Bar Association Committee on Software Contracting, both in Chicago.

Robert A. Currie
Atlanta

Down with techno-twits

S O, ARE WE supposed to be impressed that Andrew Seybold plays with his computer toys while driving at 80 mph ("Commuters' computers," *Alt.cw*, CW, Oct. 21)? How old is this guy, 14?

There are plenty of natural-born morons slaughtering people on our highways; we don't need technology-enabled twits adding to the carnage.

I've got a news flash for you, Andy: You're not that important. The world's not going to come to an end if you wait until the next off-ramp to read your E-mail.

George Dovel
Seattle
georged@dovel.com

Hats off to our devilish wit

THANK YOU for printing Dave Brown's letter to the editor ["No vulgarity, please," CW, Oct. 21]. It was not only delicious self-parody, but also a thought-provoking tidbit.

I find it hard to believe that anyone who has ever used Unix — or any computer system, for that matter — could be offended by a headline like "Hell no, Unix won't go."

Aside from the painful truth of that statement, it is a great headline and a clever reference. It is the imaginary protest cry of a stubborn operating system that dates back to a time when people voiced their objections in the streets instead of via E-mail.

I have come to expect such wit from *Computerworld*. It is a welcome change from computer publications that focus so hard on covering the information industry that they forget there are people behind those computers (and clever ones at that).

Eric Appleby
Cincinnati

Buggy betas do a disservice to the software industry

J ON MCGUIRE writes in his letter to the editor ["A beta with bugs isn't quite news, you know,"

CW, Nov. 4] that people who expect a polished product when they download a beta version of software do a major disservice to the industry.

Earlier this year, Novell released a beta of NetWare 4.11, also known as Green River.

Anyone with a Novell sales representative got a free copy. You could buy a copy for \$30 or attend an update class and get a copy. The license is for 250 users and time-bombs Dec. 31.

In this "beta," I've beaten up the network operating system, the Web server, the IPX/IP gateway and the 32-bit clients and haven't found any bugs yet. I only hope the production release is as stable.

So what do we learn? There are betas and there are betas. Users should demand the best. Perhaps certain software vendors should be viewed as doing a disservice to the industry by releasing software with bugs under any label, beta or production.

Mike Neal
Portland, Ore.
miken@sba.pdx.edu
More letters, page 44

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

Start your business rules engine

Patricia B. Seybold

Are you still embedding the rules of your business in application logic or database triggers? You're in big trouble. There's no way you can change those systems into flexible applications that meet the rapidly changing needs of your business.

Instead, you should separate the business rules from the rest of your application code. All businesses must be able to change business rules on the fly as they strive to be nimble and competitive. It must be easy for business managers and even customers to make those changes, without help from programmers.

If you're not tuned in to the concept of business rules, you're not tuned in to your business.

Eavesdrop on almost any conversation among business managers, and you'll hear talk about business rules: Why are we refusing credit to Hispanics under 30? What's our policy for educational discounts? Does it apply to private colleges? When does this



Separate business rules from applications so your company can be more nimble and competitive

new pricing plan take effect? Does it supersede prices in effect for existing customers?

Those are the kinds of policies that should be stored in a rules engine, in such a way that they easily can be changed by the business owner.

Business rules previously were associated with niche technologies such as

rules-based expert systems and workflow software.

But the concept of a separate rules engine is on the verge of broader acceptance because of the World Wide Web and the compelling need to integrate disparate applications.

On the Web, companies are beginning to cater to customers' individual preferences with one-to-one marketing and fulfillment. As a customer, I can configure and buy computers at Dell Computer's site, subscribe to a personalized edition of *The Wall Street Journal* and have Amazon.com notify me whenever a new book is available in my field of interest.

Another way to serve customers is to integrate the applications — from ordering to shipment and billing — that affect the customer. Business rules should be a key part of that integration.

We need to accommodate the following business rules:

- The rules that govern policies, pricing, product configuration and the myriad of "if/then" statements in today's application logic. These should be maintained by the business owners.

- The rules in the customer profile. That is where the customer specifies how he wants to do business with your firm.

- The rules embedded in your existing systems. Each legacy system has a set of assumptions about what it needs to do its job and what it expects from the applications or users that provide input. Those rules need to be documented as part of the middleware you use to glue applications together. That way, when you substitute one back-end application for another, you'll know what rules need to be changed.

GROWTH IN ACCEPTANCE

My predictions: Business rules engines will become much more popular in the next few years. And the practice of separating and codifying business rules during the early phases of systems development will become common practice. Business users and customers will begin to take ownership of their rules.

So as you select off-the-shelf applications or development tools, look for the business rules engine. If it isn't included, look elsewhere.

Seybold is president of Patricia Seybold Group in Boston. Her Internet address is psbold@psgroup.com.

Net computers hinge on corporate politics

Michael Schrage

The technology behind the network computer is boring. But the politics behind the network computer aren't. Politics, not performance, will determine the success of network computers in enterprise computing.

That's not flip cynicism; that's the way it should be. Honest. If you doubt that, listen carefully to Larry Ellison, Bill Gates, Jim Barksdale and Scott McNealy when they talk about network computers vs. PCs. When you get past the self-serving sound bites, what you hear is the lusty roar of corporate politics.

Don't be misled by political analysis that masquerades as economic analysis. Yes, the market researchers are right when they calculate the life-cycle costs of the corporate PC as being an order of magnitude greater than the price of the box and its associated software. In fact, I wouldn't be surprised if some organizations, such as investment banks and insurance companies, discover that their PCs generate soft-dollar costs more than 50 times greater than the hard-dollar costs.

Indeed, if there's one unambiguous positive effect from today's network computer vaporware hype, it's that companies are being forced to account for soft-dollar budgets when they shell out hard dollars for hardware. It's about time.

But is there a medium in an organization more political than a spreadsheet? Is there any act more riven with conflicting assumptions and priorities than preparing a budget?

Why, yes, there is. Information access is every bit as political and politicizing as preparing a budget. The budget process can be as much about information access as resource allocation — just as information access can be about budgets.

That's why the argument

that network computers represent a less expensive, better alternative to PCs represents a simplistic misreading of what really matters in companies today. The real issue isn't the cost or functionality of PCs or network computers. The hot-button issue is the politics of the organization. Who controls access to mission-critical data? Do managers get rewarded for sharing information or hoarding it? Who should get access to what information at what time and at what cost?

IS managers who think the arrival of \$999 network computers that can run Navigator and Java will make answering those questions any easier would be well-advised to accept their early retirement offers. Or, more reasonably, they should avoid



The politics of information will decide the fate of network computers

having direct contact with anybody outside IS.

The network computer is an artifact not of technological innovation, but of corporate infighting. There's a market for machines that give the enterprise greater control over information access and analysis for less money. So what happens when some managers get PCs and others get network computers? You know perfectly well what happens.

A quickie history lesson: What happened when the enterprise bought PCs for some departments and not for others? People bootlegged PCs.

That's what will happen in a world of intranets and network computers, depending on the infopolitics of the enterprise. So let's have the integrity to admit that the network computer isn't about the economics of information, but the political economy of organizations. Information access — not information technology budgets — will be the minefield that either keeps network computers out of the enterprise or brings them in.

Schrage is a research associate at the MIT Media Lab and author of *No More Teams!* His Internet address is schrage@media.mit.edu.

Harness the Power of your Distributed Environment



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The true potential of your distributed environment is right there, waiting to be harnessed. The PATROL® Management Suite of products gives *you* the power. PATROL helps you better support your end users by ensuring their critical applications and data are available – 24 hours a day, 365 days a year.

PATROL

proactively monitors a wide range of availability and performance indicators for each managed software solution, discovering errors and correcting problems – when authorized – before end users are affected. Supporting higher availability and performance for more leading applications, databases, middleware, Internet servers, and resources than any other management product. So your end users remain productive.



PATROL management support is available today for more than 30 leading software solutions, including SAP R/3, PeopleSoft, Oracle, Sybase, Informix, TUXEDO, Lotus Notes, Internet servers, and your in-house applications. Scaling efficiently across thousands of servers running Unix, NT, OS/2 or MVS. And integrating seamlessly with your existing system and network management frameworks, including HP OpenView.

PATROL technology is being used on tens of thousands of servers around the world. PATROL is the only application and data management product shipped with every Digital AlphaServer worldwide, and PATROL will be the only management product embedded on Intel's new i960 processor. No wonder leading analysts and consultants are calling PATROL the "clear choice" for managing applications and data across distributed systems.

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The Society for Information
Management (SIM) and
COMPUTERWORLD present:

EXECUTIVE TECHNOLOGY SUMMIT '97

May 19 - 21, 1997

The Pointe Hilton Resort
at Squaw Peak
Phoenix, Arizona

**A Dynamic Forum Where IT
Executives Get Answers On:**

- Distributed Computing
- Data Mining and Data Warehousing
- Doing Business with Internet Technologies

Technology Panels

The following three, 60-minute case-study panels discuss technology applications and implementation, including performance expectations, scope, process and return on investment.



Distributed Computing
Monday, May 19, 1997
Moderated by: Alan Alper
Editor, Magazines Group
Computerworld

The effective use of distributed computing technology raises new challenges for the IT executive. The following issues will be discussed to help you separate promises from reality and to effectively estimate the impact on your resources:

- migration of existing systems
- increased need for object-oriented development
- systems management procedures
- user file management and related fundamental security issues
- adequate hardware and software componentry
- language standards and interoperability

The 1997 Executive Technology Summit Harvesting Your IT Investments

As we approach the year 2000, business is being irrevocably changed. Whole industries are being reshaped by the forces of increased customer expectations and dramatically shortened time to market cycles. This raises the question, "How can I increase my yield from my IT investments?"

The fourth annual Executive Technology Summit is being presented by SIM and Computerworld, to offer attendees more insight into the ever changing world of information technology. This unique program includes: keynote presentations, where IT visionaries offer first-hand accounts of technology solutions; technology panels, where CIOs are queried by highly respected industry analysts, consultants and editors; technology provider strategy panels, offering perspectives from sponsoring companies' CEOs or CTOs; and Solution Labs, where leading suppliers share their IT expertise.

Powerful Keynote Sessions



John Cross
British
Petroleum



John Singel
Price
Waterhouse



Naomi Seligman
Research Board

Kicking off ETS '97 is John Cross, General Manager of IT for British Petroleum PLC. Cross discusses the "Transformation of the IT Function at British Petroleum" as they moved from a mainframe VMS environment to client/server. A special Integrator keynote has been added to the program this year, featuring John Singel, National Internet Technology Domain Leader of Price Waterhouse. The closing keynote is provided by Naomi Seligman, Senior Partner of the Research Board, who covers some of the data collected by her exclusive organization.

Technology Provider Strategy Panels

Here is your chance to hear from a senior level IT executive from an ETS sponsor company in a moderated panel format. Corporate strategies and future directions are revealed, as well as answers to questions about new technologies and emerging trends. Hear their stories and learn what you need to know about these companies in order to make beneficial IT investments.

Solution Labs

See for yourself, the latest technology solutions from today's top IT vendors. Leading suppliers share their vision and expertise. In these small, highly interactive educational forums, explore specific solutions to the issues facing you and your organization.



Data Mining and Data Warehousing
Tuesday, May 20, 1997
Moderated by: Alan Paller
Director, Research and Education
Data Warehousing Institute

Many issues plague the IT executive attempting to implement a successful data warehousing or data solution for their enterprise. Here's your opportunity to get the answers to the following questions:

- what kind of infrastructure is necessary to support the amount of data that will be stored and processed?
- do I need a relational database or multi-dimensional database?
- what set of tools will most appropriately support end-user needs?
- what are the real capabilities, the relative costs and the return?
- should analysis happen on the desktop or on the server and who has what level of access?
- search engine, text retrieval engine and sort processing options



Doing Business with Internet Technologies
Wednesday, May 21, 1997
Moderated by: Gay Slesinger
Vice President,
Giga Information Group

What are the viable solutions, the costs and the expected return from the corporate business perspective when doing business with Internet technologies? This is your opportunity to discuss solutions on:

- choice of architecture
- security and standards issues
- capitalization of the Internet for intranet purposes
- infrastructure support issues
- planning for effective use of the Internet beyond the year 2000



And again, this year's ETS conference will be hosted by our Master of Ceremonies, Scott Shuster, Founding Editorial Director, Business Week Conference Programs.

For more information or to register for ETS '97, call 1-800-464-0061 today! Or visit our website at www.computerworld.com or SIM's website at www.simnet.org.

Come meet and visit with the following ETS '97 Sponsors:



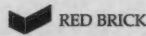
Icandle

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ASSOCIATES

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COMPUTERWORLD

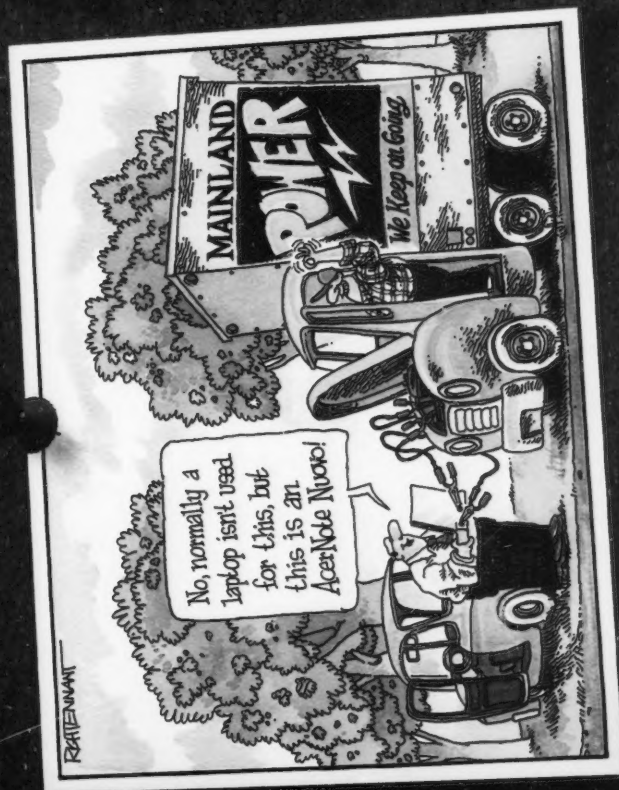
and

ACER 

present the

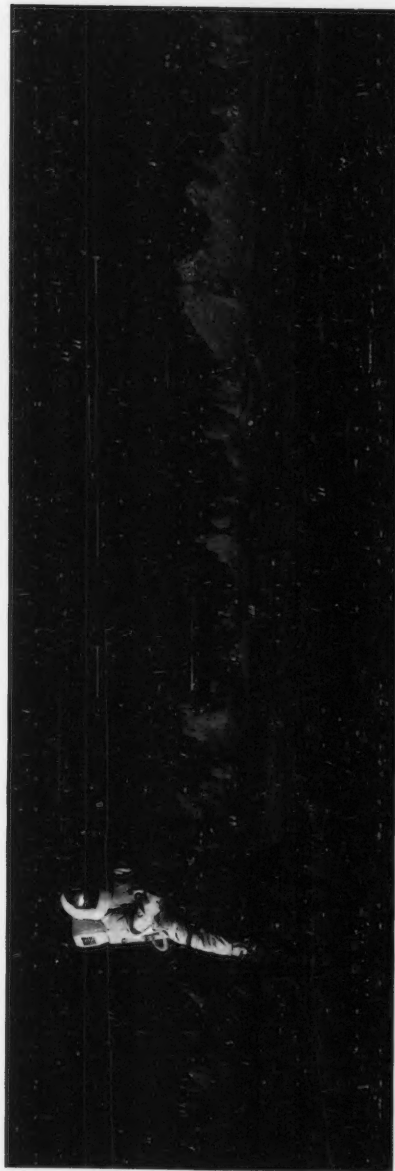
1997 Rick Tennant Cartoon Calendar

COMPUTERWORLD



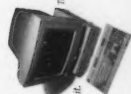
SEE INSIDE FOR DETAILS
ON MONTHLY ACER
PRODUCT GIVEAWAYS!





EVERYONE today is advertising the future.
But do they have the tools to get you there?

DVD, high-definition wide-screen monitors, Internet and intranet servers.
If people are talking about it, we're probably already working on it.



The AcerPower 5000 Series

Acer
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RYHTEBNAW



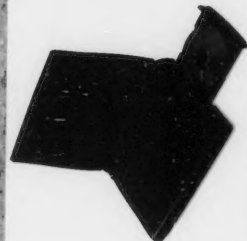
"SOMEONE KEEPS GOING INTO MY PERSONAL FILE. I'D SURE AS HELL LIKE TO FIND OUT WHO USES THE PASSWORD 'PEANUT BREATH'."

December 1996

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

February 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	



WIN An AcerNote Light Multimedia Notebook in our January giveaway.

Enter at www.acer.com/aac/

AcerNote™ Light Multimedia Notebook

120MHz Intel® Pentium® processor
16MB EDO RAM
11.3" dual scan display
Built-in 6x CD-ROM



Sunday Monday Tuesday Wednesday Thursday Friday Saturday

Acer Milestones... 1976 Acer® (Multitech) is founded.	Acer Milestones... 1995 Acer's Stan Shih and Ronald Chwang inducted into Oracle/Forbes Magazine's Industry Hall of Fame.		1 New Year's Day	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20 Martin Luther King, Jr. Day	21	22	23	24	25
26	27	28	29	30	31	

COMPUTERWORLD
The Authority for Information Technology Leaders

January



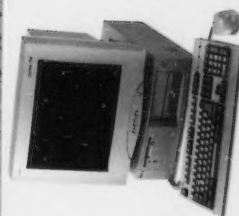
"BETTER CALL MRS AND TELL THEM ONE OF OUR NETWORKS HAS GONE BAD."

January 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

March 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					



AcerPower™ Desktop

133MHz Intel Pentium processor
16MB EDO RAM
High-performance 1.2GB HDD
Microsoft® Windows® 95



A fresh perspective.

WIN An AcerPower Desktop
in our February giveaway.

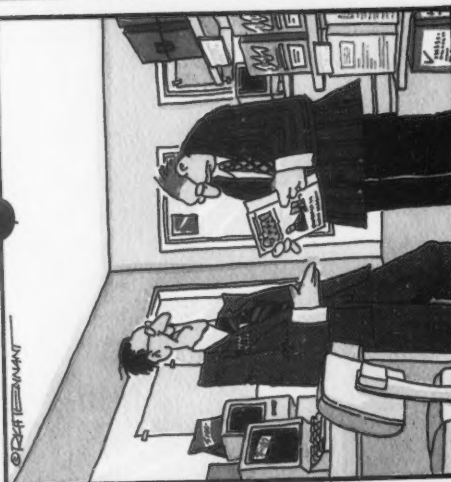
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Sunday Monday Tuesday Wednesday Thursday Friday Saturday

Acer Milestones... 1984 Acer is the first computer manufacturer to ship Pentium® processor-based desktops in the U.S. retail channel.	Acer Milestones... 1994 Acer introduces black multimedia PC for the home.					1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	Washington's Birthday

COMPUTERWORLD
The Authority for Information Technology Leaders

February



"IT'S A SOFTWARE PROGRAM THAT MORE FULLY REFLECTS AN ACTUAL OFFICE ENVIRONMENT. IT MULTI-TASKS WITH OTHER USERS, INTEGRATES SHARED DATA, AND THEN USES THAT INFORMATION TO NETWORK VICIOUS RUMORS THROUGH AN INTER-OFFICE LINK-UP."

February 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

April 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			



AcerAltos™ 900Pro Server
 180MHz Intel Pentium processor
 32MB ECC RAM, 256KB Cache
 2GB SCSI hard drive and 8x CD-ROM
 The powerful, entry-level solution



WIN An AcerAltos 900Pro Server in our March giveaway.

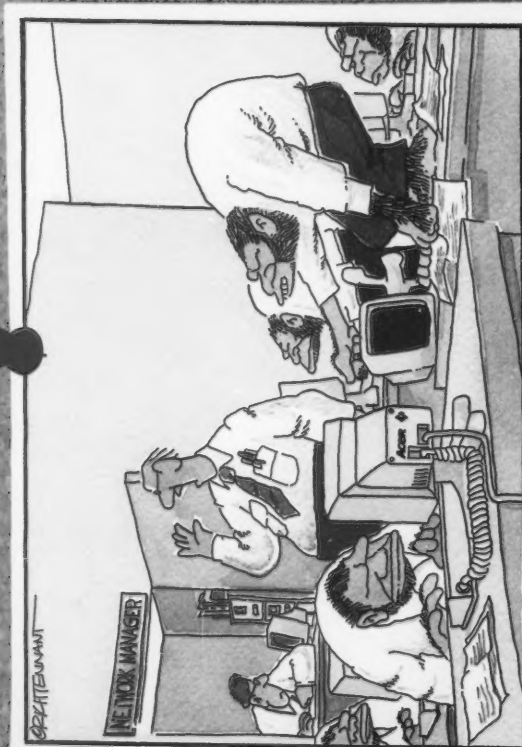
Enter at www.acer.com/aac/

Sunday Monday Tuesday Wednesday Thursday Friday Saturday

Acer Milestones... 1994 Acer introduces the first 90MHz Pentium® processor-based server.	Acer Milestones... 1996 The Acer Aspire™ Techline PC Magazine's "Editor's Choice Award"					1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
Palm Sunday 23	24 St. Patrick's Day	25	26	27	28 Good Friday	29
30 Easter Sunday	31					

COMPUTERWORLD
The International Information Technology Leaders

March



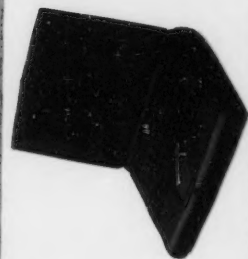
"YOU'D BETTER GET OUT HERE - ONE OF THE LINKS IN THE NETWORK IS STARTING TO ACT UP."

March 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

May 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					



AcerNote Nuovo™ Multimedia Notebook

Up to 7-hour battery life
133MHz Intel Pentium processor
11.3" dual scan color display
28.8Kbps modem with fax



A fresh perspective.

WIN An AcerNote Nuovo
Notebook in our April giveaway.

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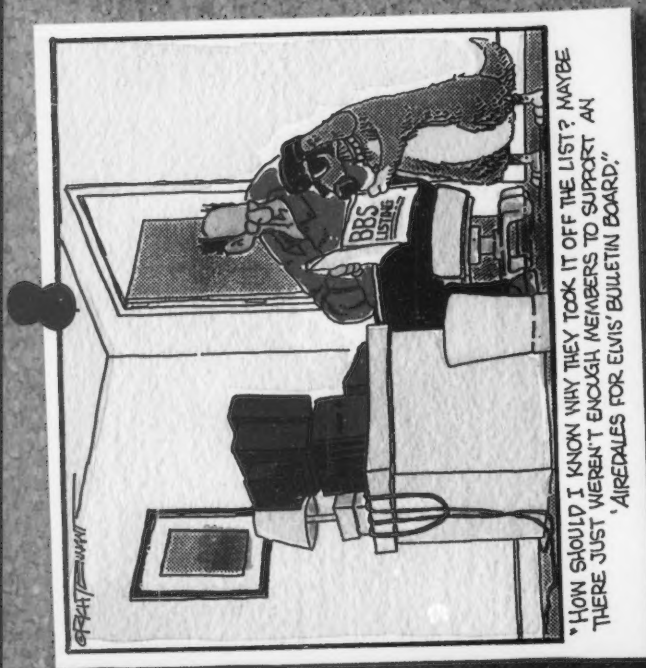
Sunday Monday Tuesday Wednesday Thursday Friday Saturday

Acer Milestones... 1991 Texas Instruments and Acer join venture to produce OSAM.	Acer Milestones... 1990 20 out of 30 PC companies use Acer components.	1	2	3	4	5
6 Daylight Savings Time begins	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22 Passover	23 Professional Secretaries Day	24	25	26
27	28 Passover begins at sundown	29	30			

COMPUTERWORLD

The Authority for Information Technology Leaders

April



*HOW SHOULD I KNOW WHY THEY TOOK IT OFF THE LIST? MAYBE THERE JUST WEREN'T ENOUGH MEMBERS TO SUPPORT AN 'AIREDALES FOR ELVIS' BULLETIN BOARD."

April 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

June 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					



AcerPower Minitower
 133MHz Intel Pentium processor
 16MB EDO RAM
 High-performance 1.6GB HDD
 Microsoft Windows 95



WIN An AcerPower Minitower
in our May giveaway.

Enter at www.acer.com/aac/

Sunday Monday Tuesday Wednesday Thursday Friday Saturday

Acer Milestones... 1989 Acer acquires Alcatel Computer Systems, the leading manufacturer of server solutions.	Acer Milestones... 1993 Acer America is the first to ship EnergyStar-Compliant.			1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
Mother's Day	19	20	21	22	23	24 Armed Forces Day
18	26 Victoria Day (Canada)	27	28	29	30 Memorial Day	31
25	Memorial Day (Observed)					

COMPUTERWORLD
The Authority for Information Technology Leaders

May



May 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

July 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		



AcerAltos 9000 Server
166MHz Intel Pentium processor
32MB RAM
2GB hard drive and 8x CD-ROM
The ideal mid-range solution



A fresh perspective.

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in our June giveaway.

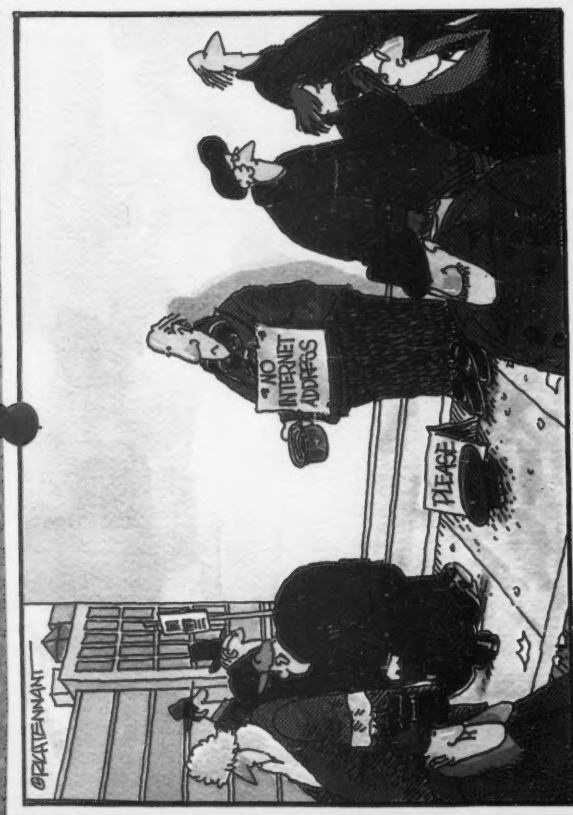
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Sunday Monday Tuesday Wednesday Thursday Friday Saturday

1	2	3	4	5	6	7
8	9	10	11	12	13	14 Flag Day
15 Father's Day	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30			Acer Milestones... 1991 Acer introduces Cello, the world's first 386 to 486 single-chip CPU upgrade.	Acer Milestones... 1993 The Acer Aspire receives Business Model 5" Slim Product Design of the Year award.	Acer Milestones... 1993 Acer wins the 20th Anniversary.

COMPUTERWORLD
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June



June 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

August 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

WIN An AcerPower Business Multimedia Desktop
Multimedia Desktop in our
July giveaway.

Enter at www.acer.com/aac/



AcerPower Business Multimedia Desktop
 133MHz Intel Pentium processor
 16MB EDO RAM
 High-performance 16GB hard drive
 8x CD-ROM, sound card and speakers



Sunday Monday Tuesday Wednesday Thursday Friday Saturday

Acer Milestones... 1986 Acer opens a U.S. office in San Jose, CA.	Acer Milestones... 1996 Acer ranks #1 in PC server shipments worldwide (IDC).	1	2	3	4	5
6	7	8 Canada Day (Canada)	9	10	11 Independence Day	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

COMPUTERWORLD
The Marketplace for Information Technology Leaders

July



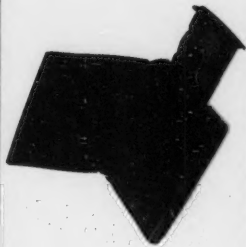
"ANNN Jeez- I was afraid of this. Some poor kid, bored with the usual chat lines, starts looking for bigger Kicks. Pretty soon they're surfen' the seedy back alleys of cyberspace and before you know, they're into a file they can't undo. I guess that's why they call it the Web. Somebody open a window!"

July 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

September 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				



WIN An AcerNote Light Multimedia Notebook
Notebook in our August giveaway.

Enter at www.acer.com/aac/

AcerNote Light Multimedia Notebook

120MHz Intel Pentium processor
 16MB EDO RAM
 11.3" dual scan display
 Built-in 6x CD-ROM



Sunday Monday Tuesday Wednesday Thursday Friday Saturday

Acer Milestones... 1991 As of 1991 is first multiprocessor system using Intel 486SX with 64-bit bus	Acer Milestones... 1992 As of 1992 is first multimedia and "One-stop-like Multimedia System" by Personal Computing	Acer Milestones... 1993 As of 1993 is first "Econo's Choice" from Computer Magazine News			1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24 31	25	26	27	28	29	30

COMPUTERWORLD
The Authority for Information Technology Leaders

August



"Of course graphics are important to your project, Eddy, but I think it would've been better to scan a picture of your worm collection."

August 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

October 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31



AcerPower Desktop

133MHz Intel Pentium processor
16MB EDO RAM
High performance 12GB HDD
Microsoft Windows 95



**WIN An AcerPower Desktop
in our September giveaway.**

Enter at www.acer.com/aac/

Sunday Monday Tuesday Wednesday Thursday Friday Saturday

	1 Labor Day	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30		Acer Milestones... 1982 Acer offers first symmetric multiprocessing version of TCMIP.	Acer Milestones... 1985 Acer's Stan Shih is "International CEO of the Year" (Financial World).	Acer Milestones... 1988 Acer America introduces revolutionary Acer Aspire desktops and notebooks for the home market.

COMPUTERWORLD
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September



THIS WAS WORSE THAN WOODSTOCK- PEOPLE PASSED OUT ON BAD APPS, AND A BUNCH OF ANALYSTS PUSHED OVER AN ESPRESSO MACHINE SCREAMING, 'LATE TO THE PEOPLE!'

September 1997

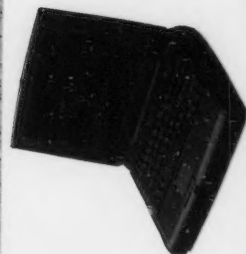
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

November 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

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Enter at www.acer.com/aac/



AcerNote Nuovo Multimedia Notebook

Up to 7-hour battery life
133MHz Intel Pentium processor
11.3" dual scan color display
28.8Kbps modem with fax



Sunday Monday Tuesday Wednesday Thursday Friday Saturday

Acer Milestones... 1989 Acer ships its one millionth PC.	Acer Milestones... 1996 Acer ships the Aspire™ Notebook™, the notebook with 7-hour battery life.		1 Rosh Hashanah begins at sundown	2 Rosh Hashanah	3	4
5	6	7	8	9	10 Yom Kippur begins at sundown	11
12 Columbus Day	13 Columbus Day (Observed) Thanksgiving Day (Canada)	14	15	16	17	18 Yom Kippur
19	20	21	22	23	24 United Nations Day	25
26 Daylight Savings Time ends	27	28	29	30	31 Halloween	

COMPUTERWORLD
The Marketplace for Information Technology Leaders

October



October 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

December 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			



AcerPower Minitower
133MHz Intel Pentium processor
16MB EDO RAM
High-performance 1.6GB HDD
Microsoft Windows 95



A fresh perspective.

WIN An AcerPower Minitower
in our November giveaway.

Enter at www.acer.com/aac/

Sunday Monday Tuesday Wednesday Thursday Friday Saturday

Acer Milestones... 1992 Acer creates world's first 386SX 32 chip set.	Acer Milestones... 1994 Acer is first ISO-9000 certified PC company.	Acer Milestones... 1994 Acer revenues top \$5 billion.				1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30				Thanksgiving Day		

COMPUTERWORLD
The Authority for Information Technology Leaders

November



November 1997

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

January 1998

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

WIN An AcerPower Business Multimedia Desktop in our December giveaway.

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AcerPower Business Multimedia Desktop
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December

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COMMENTARY

Channel-surfing with PCs

DAVID MOSCHELLA

THE INFORMATION superhighway was the dominant Internet metaphor of 1994 and 1995. The digerati now buzz about the parallels between the PC and the TV. "Channels" is the hottest word today on the Web.

I'm not talking about distribution channels or even the important interactive television efforts from companies such as WebTV Networks and Wink Communications. As last month's Comdex made clear, our industry is really excited about the idea of turning a typical PC into a 24-hour narrowcast receiver.

Start-ups such as PointCast, BackWeb Technologies, Marimba, Intermind and AirMedia have pioneered the field. In the next year, they will be joined by Netscape's Constellation and Microsoft's Active Desktop. The approaches vary, but they share the following common themes:

- Like a fax machine, the PC should work all the time, not just when a human operates it. AirMedia even delivers data to mobile PCs through a radio-like antenna. Being constantly on and active makes a PC truly network-centric.

- Information is sent proactively — according to customer-provided preferences — and displayed as channels that can be selected. Some pundits have even suggested that these channels could supplant the Windows interface. The "invited push media" can relieve users of having to go back to their favorite Web sites just to see if anything is new. It is a big step toward the real use of agent technology. On the other hand, push media can easily lead to the proliferation of junk mail and is barely distinguishable from spamming.

- Broadcast technologies can send text, graphics, audio and even video files to a PC during off-hours, when there is substantial unused bandwidth. The ability to efficiently download custom multimedia information creates the potential for truly personal TV, with programs that can be watched any time.

- There is a heavy emphasis on Sun's Java as the means to deliver complex content, although the channel concept is intrinsically hardware- and software-independent. Marimba was founded by several key members of the original Java development team.

- Vendors typically provide client software for free. They make money by selling required server software and sometimes, as with PointCast, advertising.

Current products are aimed mostly at individuals, but businesses will adopt push media technology to automatically distribute mass-customized information internally and externally. For example, in-

stantly and inexpensively notifying customers of relevant product availability, price changes and special offers would

represent a big step toward true electronic commerce. Witness the close cooperation between Lotus and PointCast.

And this is clearly just the beginning. Microsoft and America Online are increasingly adopting the channel metaphor to describe their online services. Intel CEO Andy Grove's latest



stump speech emphasized the coming competition between PCs and TVs for the eyeballs of society. Perhaps most important, the recent compromise between TV and computer manufacturers over digital TV specifications could eventually blur the lines between PCs and TVs altogether.

VIEWPOINT

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Moschella is senior vice president of research at Computerworld, Inc. His Internet address is david_moschella@cw.com.

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LETTERS

IRS modernization is a mess, but is it really costing us \$50B?

I'M LOOKING at your magazine's otherwise excellent article about incompetence at the IRS ["IRS project failures cost taxpayers \$50B annually," CW, Oct. 14]. On the front page, it says that this has cost taxpayers \$50 billion, but it would seem to me that if the government has failed to collect said amount, the taxpayers have actually saved \$50 billion.

That's \$50 billion that went to Bill Gates to build his house (he has earned it; the IRS hasn't), to an extra vacation for someone, to start new companies, to invest in publicly traded companies, to helping the Dow pass the 6,000 mark. That's \$50 billion not in the hands of an incompetent federal government but in the hands of citizens who have earned their money and have every moral right to spend it.

Seems like a good deal to me.

Prode L. Odegard
President, chairman and CEO
Odegard Labs, Inc.
Pasadena, Calif.
frode@odegard.com

TRY TO IMAGINE putting your money into a bank that shared the IRS' track record with modernization. You have made an excellent case for what libertarians have been saying for the past 25 years: Government doesn't work.

Any business run the way the IRS and the federal government are run wouldn't last a month. As forward-looking people, computer professionals should be

ashamed to feed off the public trough by doing any work for the IRS.

Michael Martin
Cockeysville, Md.
mbmartin@gnn.com

IN YOUR OCT. 14 issue, you made a mistake. The headline on the front page reads, "IRS project failures cost taxpayers \$50B annually." I think it should read, "IRS project failures save taxpayers \$50B annually." I mean, after all, taxpayers pay \$50 billion less in taxes annually.

Eric Katsov
CEO
Katsov Business Solutions, Inc.
Hoboken, N.J.
erick4@mail.idt.net

BRAVO ON SOME good old-fashioned investigative journalism on the IRS. In addition to your list of things \$50 billion in savings could buy, I add help for the one out of five U.S. children in poverty. That rate is the worst among industri-

alized nations, according to a radio report I heard this morning just before reading your report.

Thanks for your courage and professionalism.

Frances Harriman
Emeryville, Calif.
fharriman@upstart.com

THE IRS software mess featured on page 1 of the Oct. 14 issue of *Computerworld* happens too often. I propose these practices be accepted as a minimum set of ethical behaviors when preparing software deemed critical by the customer or the supplier:

1. A software architect and project manager are explicitly named, and both attest that the software is "fit for use."
2. They analyze software risks and document their findings.
3. They make sure that user interfaces are intuitive and easy to use, that "help" is helpful, that personal information is protected and that the ergonomics of the system were designed with care.
4. They understand the problem and don't just accept the customer's solution.
5. They follow formal documented software development processes.
6. They respect property, copyright, patent and privacy rights.

Larry Bernstein
President
National Software Council
Short Hills, N.J.

HOW DO YOU figure that the IRS not collecting \$50 billion costs me? It reminds me of an IRS high muckamuck who said in one of your articles that the IRS was a profit center. Oy vey!

Jim Murray
Maumee, Ohio
jmurray@expost2.lof.com

news editor Patricia Keefe for her editorial along the same lines ["Too good to be true," CW, Nov. 18].

I was gratified to learn that not everyone is taken in by the latest hype. It especially warms my heart to see that two people from one of the major IS trade journals are similarly cautious when it comes to the net computing paradigm.

I cannot for the life of me see why any IS manager would consider doing a "dumb-terminal retro" like this. Besides the benefits of traditional client/server that you mention, what about distributed processing, distributed storage and the user autonomy/empowerment that those bring? Not to mention the very real possibility that the money to be saved in client administration costs with net computing will be more than eaten up in increased bandwidth expense, more expensive server hardware, very complex and expensive application server software and so on.

If these non-Wintel net terminals are successful, I bet that within two years, Sun/Oracle/Whoever will introduce a net computer with its own hard drive, its own CD-ROM and so on that will cost about twice what a similar Wintel setup does and run only software written in Java on its own proprietary chip. Then all these retro-boneheads will end up "upgrading" because they suddenly find the need for more client-side power.

Don't get me wrong—I'm not defending what the Wintel alliance has done to IS budgets in the past few years. But it seems very foolish to advocate the replacement of the current semiprofessional client-centric computing model with an almost totally proprietary server-centric computing model.

Dave Fladebo
IS manager
St. Cloud, Minn.
gostpsco@cloudnet.com

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What a wise guy

LIKE Galileo, we who embrace new IS truths risk the scorn of wise guys like Michael Schrage. He dismisses the current wave of enthusiasm for knowledge management in favor of what he predicts will be the next paradigm: "wisdom management?" ["Why stop at knowledge management?" CW, Nov. 11].

Very funny. The fact is that technology (E-mail, groupware, intranet) enables organizations to accelerate knowledge-sharing by building it in to the business process.

If culture and incentives are supportive, people learn faster and create more value for their employer. History will prove that knowledge management is like rock 'n' roll: here to stay.

Mark Rosenman
Knowledge Manager Project
KPMG Peat Marwick LLP
Montvale, N.J.
mrosenma@kpmg.com

Network computing is for retro-boneheads

KUDOS TO *Computerworld* columnist David Moschella for "The net computer fantasy" article [CW, Nov. 25] and to

'Stay off the Internet' is poor advice for corporate America

IN MICHAEL COHN's Nov. 25 *Computerworld* column ["For business, the Internet still doesn't compute"], he states that "The Internet is no place for corporate America. Stay off it."

If corporate America does not stay on the Internet and learn to utilize the features and benefits it has to offer, it will not be competitive in the marketplace today.

The Internet is not only a place to communicate effectively, it is also a new, open environment for purchasing agents to shop freely without global limits. The Internet has put countless unique, hard-to-find products, pricing and information in hands that otherwise would not have access to them.

My advice to corporate America is to stay on the 'net: that's where the business of today is being transacted.

Carol Blake
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 - (a) Solaris (e) Mac OS
 - (b) Netware (f) Windows NT
 - (c) OS/2 (g) Windows
 - (d) Unix (h) NeXTstep
- App. Development Products ☐ Yes ☐ No
- Networking Products ☐ Yes ☐ No
- Intranet Products ☐ Yes ☐ No

4. Which of the following software products do you buy, specify, recommend or approve the purchase of? (Please check all that apply)

- (a) ☐ Internet software
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- (c) ☐ Web authoring/development tools

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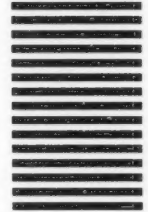
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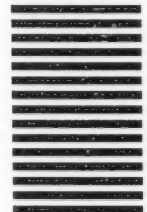
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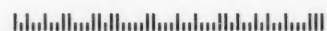
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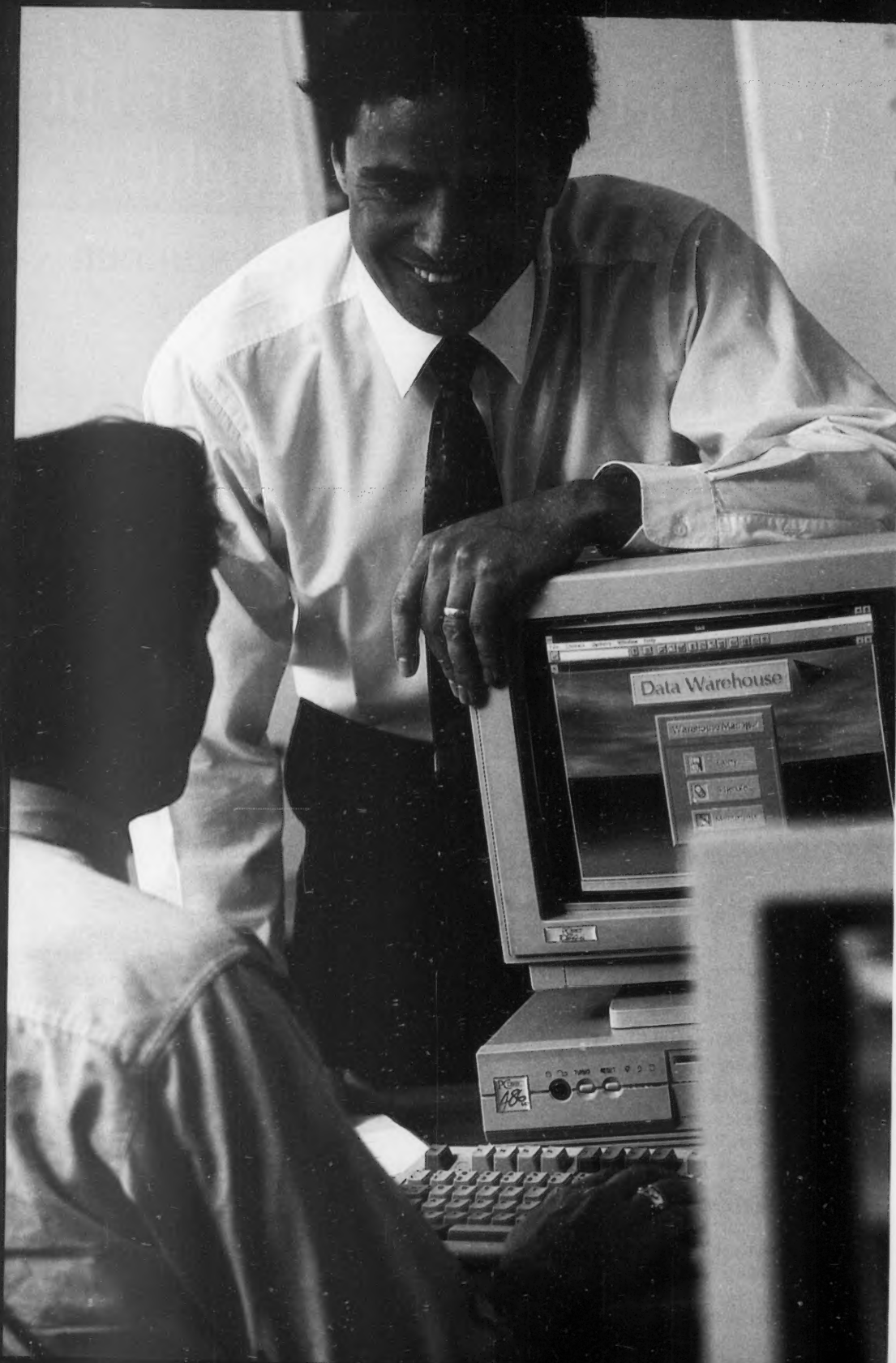
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Proactive Management Tools Mean Business

Part 4 of a 4-part series on Enterprise Software Directions



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Introduction



Proactive Management Tools: They Mean Business

Proactive management. Mere buzzword? Or does the term offer a meaningful description of more productive IT management practices and tools?

In this White Paper, International Data Corp. (IDC) intends to answer that question. IDC will sift through the clamor surrounding proactive management in order to develop a clear definition of the term and discover what relevance proactive management — and the lack thereof — holds for network and systems managers.

IDC will also examine the proactive management capabilities available in tools currently being used now as well as those that are emerging in the marketplace. When users of management software finish this White Paper, they will be better able to judge the promises of vendors who claim to deliver proactive management.

This White Paper was written by IDC's distributed management research team. This research and consulting practice focuses on distributed management products for distributed LANs, desktops, servers and applications. The analysts in this group cover worldwide use of SNMP management platforms; hub, switch and router management packages; RMON management probes; and application and PC/server management suites.

IDC, which frequently assists leading IT firms in defining their marketing, positioning and technology strategies for management product lines, is headquartered in Framingham, Mass. The market research and analysis firm covers the world of technology with more than 350 analysts in more than 40 countries. IDC can be reached at www.idcresearch.com.

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Much Activity in Proactive Management

Why spend time trying to understand the promise of proactive management? There's a good answer to this question:

Your business may depend on it.

IS is overwhelmed by the proliferation of distributed systems, network-based applications and Internet clients. Everything, from routine clerical functions and basic internal communications to collaborative design processes and time-critical transaction processing, has been moved onto LANs, creating a premium on network availability. With networked applications fueling innovation in products and services, IS is often made a partner in product development. With time-to-market crucial, limitations in systems and network management capabilities can be a very costly bottleneck.

A recent IDC survey of 500 IS managers shows the urgency they feel towards IT management objectives (Figure 1). Nearly a third of them call network device performance a top priority, while 28% label it a short-term goal. Only 10% considered their network device performance objectives already met.

A second area of urgency is applications performance. Nearly 60% of the managers rated this a top priority or short-term goal. Only 7% were content with their current solution (see Figure 2 on p. 4).

Administration of desktops and servers is in only slightly better shape. Only 15% of the respondents considered their management objectives met with respect to desktop administration, and only 20% saw their server administration objectives met.

One thing is clear: Most IS managers are dissatisfied with their existing management solutions. And with few business managers currently willing to in-

crease corporate overhead by adding to IS staffs, the quandary for IS is how to improve services, manage growth and meet escalating business objectives while controlling costs (see Figure 3 on p. 8).

Management tools represent the only way out of this ever-tightening trap. Not only tools that automate redundant management tasks, but tools that provide administrators with information they can use, such as baseline or resource utilization data, to improve network performance. Such tools offer far more value than those whose sole purpose is to improve fault and configuration management.

Here, then, is the value proposition of proactive management: Improved network performance (often measured by availability) reduces troubleshooting requirements, so administrators can devote more time and resources to management tasks, which will minimize future problems. Figure 4, on p. 13, illustrates this cycle.

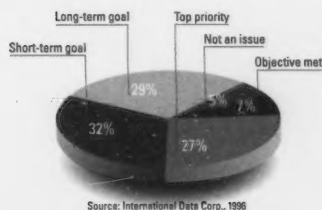
FIGURE 1
Urgency to Meet Objectives for Network Device Performance Management
(% of respondents)



Source: International Data Corp., 1996

FIGURE 2

**Urgency to Meet Objectives for
Application Performance Management**
(% of respondents)



Given the contributions IS is expected to make to a business in product development, customer service and operational infrastructure, proactive management is not just an IS goal; it is required to improve the competitiveness of technology-intensive businesses. Most current management tools are largely reactive. But this White Paper will evaluate a few proactive solutions in the network management arena, where proactive solutions are being created faster than in the systems management arena.

Reactive management

The current network management paradigm — sites with network management platforms, network element management applications and RMON probes and consoles — offers a range of fault, configuration and performance management functions. These tools keep environments up and running, but offer little direct support of the processes to evaluate and improve a network.

Network management of distributed environments began in the early 1990s with widespread adoption of SNMP instrumentation by vendors and customers. With a common means of communicating with and defining characteristics of network devices, information could be collected across multi-vendor devices. Remote device discovery and communication of status information to a centralized console gave administrators consistent topological and status information for many devices — a basic requirement for fault isolation. When alarms

were added to tell administrators which devices were down, problem isolation went from being nearly impossible to merely difficult.

The natural follow-on to providing the instrumentation and consolidation point was the device-oriented configuration tool. Network element management applications enabled administrators to configure all aspects of devices remotely, as a group or individually. With vendors able to develop device-specific management functions, management software became a key in the sale of network devices.

But limitations in topology, status and remote configuration capabilities soon became apparent. SNMP data offered no information on ongoing device performance, but RMON and RMONv2 addressed this by driving instrumentation further up the protocol stack. RMON captures data at the physical and data link layer; RMONv2 gathers statistics through the application layer. RMON probes and consoles now provide excellent visibility into real-time device performance and bandwidth utilization. In most networks, realtime analysis of RMON statistics represents the current apex of management solutions. Yet this advance in network management is not a means to proactive management.

Network management platforms

Network management platforms are often criticized for not delivering on the promise of integrated management. It is also true they usually receive no credit for the critical role they do play in management environments. But this role is not one of proactive management. Network (or SNMP) man-

Proactive Management Tools Defined

Proactive management tools bring information to an administrator's attention, enabling him or her to take action to improve or ensure future network performance. This information is not the direct result of a device or system fault, but is instead based on analysis of historical network activity.

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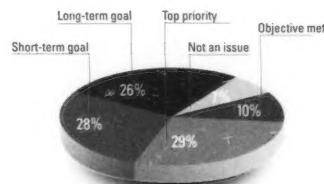
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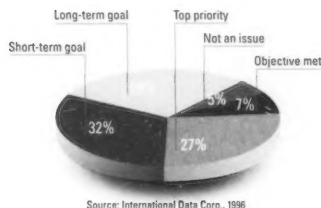
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agement platforms provide network operations management services such as device discovery that deliver realtime status information on managed nodes, but offer little analytical capability.

Although management platforms do enable administrators to set thresholds on a device-by-device basis (ideally, a way to identify a problem before it leads to device failure), a series of alerts based on thresholds alone requires complex and resource-intensive event correlation if any predictive information is to be derived. Event correlation for reducing alarms and improved fault isolation can lead to vast improvements in managing network operations, but it is not proactive. It can be the means to build a proactive management capability above a network management platform, but only for users who can afford the investment in technology and expertise.

Network element management applications

Network element management applications, e.g., Optivity from Bay Networks, Transcend from 3Com or CiscoWorks from Cisco Systems, provide tight linkages with network devices. Clearly, hardware vendors have the ability to "instrument" (pull information from) devices in a proprietary manner and provide customers with unique management capabilities. This model may generate a greater possibility of providing true proactive management than management platforms, because it needs to correlate data across only one vendor's device.

Network element management applications provide greater visibility into managed devices, but that in itself is not proactive management.

RMON probes and consoles

Some might argue that RMON and RMONv2 facilitate proactive management. However, the traditional RMON console which presents RMON data in realtime is proactive only for users capable of "mental correlation". . . or for those willing to output data and conduct piecemeal analysis.

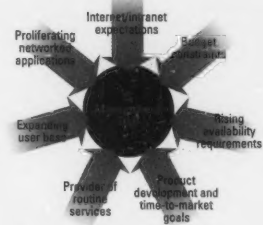
Realtime visibility into RMON data gives network managers valuable information about the performance of network segments. Yes, it is possible to analyze this information in order to optimize performance and perform capacity planning — two proactive management functions. And yes, there are

network administrators who can synthesize realtime data from multiple segments and come to meaningful conclusions about future operations. But IDC considers this a poor management practice because it is time-consuming, inherently unscalable and asks too much of the administrator.

To analyze management data more effectively, administrators must have access to historical performance trends and the ability to do computations on this data. An RMON probe and console provides access to this data, but can neither store data effectively over time (without consuming an unreasonable amount of memory) nor conduct appropriate analyses. So administrators determined to analyze management data must export data and perform calculations in a spreadsheet or statistical package. This

FIGURE 3

The Pressures on IS Staffs Continue to Mount



Source: International Data Corp., 1996

forces time-constrained administrators to conduct proactive management at the risk of losing focus on continuing operations.

In reality, RMON data collection facilities and consoles are a sophisticated fault resolution tool. Managers can use the realtime visibility to drill down on problems that have been identified, and to pinpoint potential trouble spots; but RMON deployment is not a means to perform regular analysis of historical trends and predict future performance.

If traditional network management tools cannot deliver true proactive management, where does that leave network administrators? They must look to the proactive management solutions now emerging,

even if it means sacrificing immediate integration of management tools. Products that offer fully integrated proactive management, i.e., full data sharing across OS platforms and management disciplines, are still on the drawing board.

Vendors that offer management solutions that provide predictive value with little or no additional analysis required include:

- NetSys Technologies, which tackles router performance through improved configuration management. (The Palo Alto company was just purchased by Cisco.)
- Compuware, Farmington Hills., Mich., whose EcoNet offers application traffic statistics and response time measurements.
- Concord Communications, a Marlboro, Mass., company that is making a business out of performance reporting.
- Ganymede Software, in Research Triangle Park, N.C., which uses traffic generation to test "live" networks to root out trouble spots.
- Optimal Networks, in Mountain View, which builds a network model off real traffic to predict the impact of application deployment and configuration changes.

Vendors such as these are enhancing their tools by adding analysis of management data atop mere access to that data (see Fig. 5 on p. 15). Historical and statistical analysis of management data assists administrators in making decisions. Trend data provides baseline information on network performance, giving them a starting point from which to judge future performance. From here, network managers address more vexing questions regarding hardware optimization and capacity planning.

Capacity planning is the process of determining how much bandwidth a certain class of users or resources requires. This process can also review hardware performance under different circumstances, allowing administrators to optimize device usage across their environment. But without data on capacity utilization over time, any attempt to address this question is mere guesswork.

With trend-based performance data across multiple segments, network managers can look for innovative ways to get more out of their current gear. This might entail a reconfiguration or shift of traffic

flows. (Any major delay in purchasing new network hardware, without compromising performance, is welcome by those who control the purse strings.)

Products offering these forms of proactive management functions come in three classes:

- Trend analysis products collect industry-standard management data from diverse sources, synchronize the data over time, analyze the data and deliver summary reports with actionable conclusions. Such products leverage existing instrumentation and can provide consistent information across a large number of devices.
- Simulation and modeling products let administrators test different configuration scenarios and usage patterns to optimize performance and plan for new equipment and upgrades. This way, they can determine the impact of an application rollout without endangering ongoing operations.
- Task-specific products focus on one management task or requirement, collect only the data needed to answer a narrow question, and present the result in an actionable format. Vendors access this specific data via proprietary technology. The value of this such products rests in the combination of proprietary data oriented to a specific management problem and an actionable presentation of conclusions.

Trend analysis

More and more administrators are recognizing the value of automated analysis and reporting of management data, which provides them with exception and summary reports on activity across their entire environment. Exception reporting lets an IS staff quickly isolate potential trouble spots and solve problems before service is affected. Summary performance statistics can quickly show that network activity is normal and in no need of immediate action. Armed with this high-level information, they can allocate staff time and resources more efficiently.

This challenge is being addressed by product vendors such as BBN Corp., Cambridge, Mass.; BGS Systems, Waltham, Mass.; Concord Communications; DeskTalk Systems, Torrance, Calif.; Kaspia Systems, Beaverton, Ore.; and SAS Institute, Cary, N.C. Service providers, such as Sunnyvale-based INS, offer monitoring services that perform a simi-

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lar function while isolating users from set-up and administration tasks.

Concord Communications offers a range of network monitoring software solutions. Its core product, Network Health, is a trend-based analytical engine that collects and analyzes management data and produces reports on performance and utilization of network resources. It performs behavior baselining, exception reporting and trend analysis.

Concord offers four reporting applications: LAN Health, which measures network activity on a per segment or ring basis; WAN Health, which presents error rates, router performance information and bandwidth utilization statistics; Frame Relay Health, which measures utilization and congestion in frame

relay networks; and Router/Switch Health, which reports on CPU utilization, buffer handling, fault monitoring and volume by protocol. WebLink, a Web-based reporting facility, supports the full line.

One Concord customer, Arizona State University, has 17,000 connections over its main and remote campuses, totaling 80 to 90 individual customers. Concord's tools have allowed Joe Askins, director of data communications for ASU, to centralize management operations and maintain a lean staff.

Utilization statistics provide Askins with ammunition when he enters negotiations with his customers. "It is invaluable to look at variances from baselines and customer monthly profiles," he says. Un-



Evaluation Criteria for Proactive Management Tools

Proactive management is not about building a better pair of binoculars, it's about learning where to point the ones you already own and how to find points of interest on the horizon.

There is no way IS staffs can continue to meet the escalating requirements of all their constituencies — business management, users and customers — without moving toward a proactive management model. By addressing future availability and performance requirements, proactive management enables IS staffs to break out of a "firefighting" posture and focus on issues pertaining to business competitiveness.

In evaluating network management tools, administrators must fully examine the level of proactive functions a product offers by asking three questions:

- Does the tool provide information on devices or processes functioning normally, i.e., not experiencing a fault or poor performance?

- Does the analysis include historical performance data?
- Does this information offer predictive or preventive value for device or process performance?

Any "no" answer suggests the product does not offer full proactive management features. Tools must be able to analyze devices under normal conditions so as to allow administrators to understand baseline performance. If there is no historical data in the analysis, the tool cannot understand performance trends. And the information provided must allow an administrator to improve or ensure future performance.

To determine the effectiveness of a proactive management tool, product evaluators must ask:

- Does the output from the tool point to a specific action?
- If not, how much additional analysis must be conducted to arrive at an actionable conclusion?

Exception reporting illustrates this point best. An exception report

identifies a specific area in need of attention. If you read the report and know precisely what to do — work on device X — this is actionable information. If the summary report or performance analysis does not offer an immediate conclusion, how much additional analysis must be performed? If the administrator has to rely on other tools before taking action to solve the problem, the product is not a particularly effective proactive management tool.

But the ability of administrators to incorporate proactive tools into their management practices will be the ultimate measure of even the best tools. Good products will certainly find uses in IS staffs, but to maximize the value of these products, decision makers must look closely at how proactive tools can improve their internal network management practices based on the information the tools provide. Only then will IS realize the full value of proactive management tools.

derstanding his own environment intimately helps him isolate performance problems and in many cases offer "just-in-time" capacity. With Network Health statistics, he knows when his customers' segments are reaching high utilization, and can offer them a higher level of service before their performance is degraded. He also helps customers understand their own bandwidth requirements: Many insist they need a T1 until they see utilization data which shows a 56K frame relay link will do the trick.

Utilization information also comes in handy when Askins has to fend off the sales pitches of hardware vendors or WAN service providers looking to improve bandwidth unnecessarily. By knowing the precise load on each segment, he has been able to put off major expenditures by delaying ATM deployment and a fiber installation project.

Simulation and modeling

Simulation and modeling tools may be the ultimate form of proactive management. Products that enable administrators to test scenarios — from the installation of network hardware to simulating the impact of networked applications — can tell them how such activities might affect the environment. Without such tools, IS managers deploy applications from the isolation of the lab to the real-world full production network with little idea how network performance will be affected. Current simulation and modeling tools cannot entirely do away with guesswork, but they certainly reduce the anxiety that often accompanies major changes to a network.

There are two ways to simulate or model network performance. Building a model of the network infrastructure and traffic and introducing new elements under different what-if scenarios is the approach of firms like CACI International, Arlington, Va., Make Systems Inc., Mountain View; Optimal Networks; and Scientific and Engineering Software, in Austin. The second technique — simulating traffic over the production network itself and getting an "actual" measure of how the application affects the network — is the approach of Ganymede Software.

Optimal Networks targets network design and optimization processes. Its software allows users to build a model of their network, using actual traffic and topology data, on which they can test potential

configuration changes or deployment strategies.

The firm's Tool Kit line consists of three applications: Optimal Surveyor, which discovers network topology and traffic flows; Optimal Internet Monitor, which reports on Internet application traffic; and Optimal Performance, which models network topology and traffic, displays allocation of application traffic, and supports what-if capabilities to test design or flow changes.

Community Care Network, a health care company in San Diego, has 1,000 users at 20 sites using a FDDI backbone and frame relay WAN services. When the company decided to overhaul its network, the redesign included rolling out a new database application (over a NetWare network) that had to support access to many remote sites over the WAN.

Lead network designer Eligio Rollo used Opti-

Proactive Management Cycle of Productivity



Source: International Data Corp., 1996

mal's Network Tool Kit to model the effects of the application rollout and perform what-if analyses to determine the most beneficial deployment. What he discovered was no shock: Users accessing the database over the WAN experienced poor performance.

The first solution tested — deployment of more servers at remote sites to support local users — worked fine in simulation, but was expensive, given the upfront hardware costs as well as ongoing maintenance of remote servers. Rollo then used the Tool Kit to create a simulation to test deploying a second centralized server that would allow local users to ac-



The Search is on for Internet Management Tools

Companies deploying Internets and intranets are starting to find not only internal abuses but also external ones, such as outsiders gaining access to internal files or clogging corporate networks with useless traffic. "The need for intranet-specific management tools has become critical," says Frank Moss, president and CEO of Tivoli Systems, an IBM subsidiary in Austin, Texas.

In response, systems management vendors are starting to add Web management tools to their lineups. Tivoli is shipping Tivoli/net.Commander, which allows users to directly manage not only their intranet applications, but also the underlying Internet "platform" of Web, news, mail and other services. The product is part of the Tivoli Management Environment (TME) family of products.

The company is also working with net.Genesis, a Cambridge, Mass., supplier of Internet tools, to offer Tivoli/Plus for net.Analysis. This product integrates net.Analysis, a tool that analyzes Web server content usage, with TME, thereby providing IS managers with a level of functionality similar to current systems management for LANs.

Computer Associates has enhanced its CA-Unicenter systems management product with the ability to manage Web servers for the intranet or Internet. According to Yogesh Gupta, senior vice president of product strategy, "Once Web servers started being used in intranet environments for real business applications, the question became, what will people do for operational man-

agement?" The company has since integrated products from Microsoft, Netscape Communications, Open Market Corp. and Spyglass Inc.

BMC Software in Houston has added Internet and intranet monitoring to its Patrol suite with Patrol-Watch for Web Browsers and Knowledge Module for Internet servers. Compuware Corp., Farmington Hills, Mich., has added Internet and intranet server management features to its EcoTools line of network applications management tools.

WireTap, a performance management tool from Platinum Technology, in Oakbrook Terrace, Ill., can now also be used to monitor traffic to and from corporate intranets and Internet and Web servers. Like a network sniffer, the tool examines network utilization by network protocol, application and other traffic categories, and provides response time and occurrence statistics for service requests, such as intranet and Web pages.

OpenVision, in Pleasanton, Calif., has a slightly different take. According to director of product marketing Steve Foote, the company hasn't had to modify its AXXiON systems management products "one iota" for the Internet. "The same systems management products you've been using for your mission-critical applications can now be used with Internet servers," he said. "It's just a matter of performing basic systems management on your Web site."

AXXiON, said Foote, has three Internet management thrusts: storage, availability and security.

Some firms have started backing up their Web sites by employing hierarchical storage management (HSM). "Now that Web sites are using very large image files and sound files, companies are using HSM to reduce overall storage requirements for Web sites by offloading "cold" files to secondary storage. This also increases the overall efficiency of the network, Foote noted.

The issue of availability is becoming critical as more Web sites are used for distribution and selling. Once a revenue stream becomes Web-server dependent, companies lose revenue if their customers cannot get FTPs off their Web servers.

Security has become the #1 issue for Internet management. "A Net server might be hit 100,000 times a day," says Foote. "So a company wants to make sure that the information on its Web site is intact.

"You have to be careful about the security of systems management," he warned, noting that many event managers use the "highly insecure" SNMP protocol. "It's easy to spoof access with SNMP," he noted.

Another problem: When the risk assessment space of systems management is used for security analysis, the information is often left in a text file on the server. Since the HTTP process has root privileges, someone searching a term such as "security weakness" on a Web crawl can find audit reports. In one month, Foote found 124 audit reports on the Web. "It's like companies are saying, 'Here's a list of how to break into my Internet server.'"

cess the database over TCP/IP. This solution provided adequate performance to remote users — at far less cost. By using a modeling tool, Rollo was able to examine several deployment strategies and choose the least costly solution knowing it would function up to his company's performance requirements.

Task-specific products

Although products in this category might fall into the reporting or modeling disciplines, vendors in this space first identify a management problem, then decide what types of data will be required to address the problem. Next, they develop a means of collecting and processing the specific pieces of data which will solve the problem (by definition, a proprietary mechanism). The result: a solution-oriented product that leverages a new form of data collection and processing.

EcoNet from Compuware focuses on the problem of limited visibility into application performance across networks. CoroNet Systems (a firm bought by Compuware last year) developed a way to measure application traffic loads and response times by piecing together information from static ports, SAP analysis, open file requests, pattern recognition and address maps. By providing this view into application traffic, EcoNet helps identify congestion points and balance application loads across customer environments.

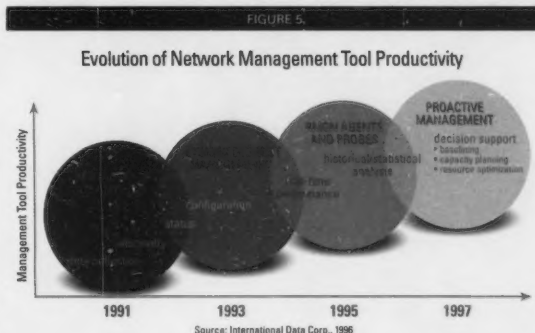
NetSys Technologies takes a task-specific approach with two applications for router configuration. Connectivity Tools generates a topology model of a routed network by modeling routing algorithms and taping information in routing tables in order to identify configuration errors and build a baseline of routed traffic. Performance Tools performs traffic analysis and what-if scenarios on top of Connectivity Tools by analyzing the interaction between application traffic and network configuration.

The NetSys tools have come in handy for Francois Negri, systems and network management engineer at Instinet, a financial services firm in New York City. Instinet is migrating its asynchronous

dial-in network to TCP/IP over a routed network. The challenge for Negri is this: He has to build a network that is your company's only vehicle of revenue generation; provide services to 2,500 sites worldwide; and configure the 6,000 routers required to make this happen.

Verifying router configurations is a labor-intensive — and highly sensitive — part of the project. Router configurations must be rigorously tested to avoid any future downtime. The problem is exacerbated because, as Negri points out, "access lists can be invalidated by one wrong character."

To ease the configuration process, Instinet uses



NetSys products. Connectivity Tools not only sped up the process of verifying router configurations for the new network, it also brought to light configuration errors that the Instinet staff would not have caught. Being able to identify router configuration errors before a network goes live will save Instinet's IS staff countless hours down the road in fault identification, not to mention what it saves the firm by preventing downtime.

Performance Tools let Instinet assess capacity requirements and identify areas where less expensive hardware would perform adequately. In many instances, Negri found that a Cisco 4500 router could replace the Cisco 7500 originally called for.

To have done the Instinet project without the NetSys tools "would have [been] ten times harder," says Negri. NetSys "eliminated the trial and error basis [of router configuration]." ■



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Servers & PCs

Large Systems • Workstations • Portable Computing

Briefs

High-end server team

Carrera Computers, Inc. in Laguna Hills, Calif., and Aspen Systems, Inc. in Wheat Ridge, Colo., have teamed up to create a workstation/server that runs on two 500-MHz Alpha 21164 processors from Digital Equipment Corp. The Cobra II targets scientific and engineering users who need high performance.

Modem protection

Best Power in Necedah, Wis., has introduced uninterruptible power supply systems that protect workstation modem connections to the World Wide Web. Best Power's Patriot Plus 650VA and 920VA models were designed to protect computers connected to the Internet via modem from lightning and other power surges.

All 'net, all the time

IBM has announced new Internet server packages based on the RS/6000 platform running AIX 4.2. The Cluster Internet Powersolutions servers bundle IBM's High Availability Clustered Multiprocessing software and ready-to-run Internet applications options, including online stock brokering and mail catalog ordering.

Platform overhauls need careful planning

By Jaikumar Vijayan

CORPORATIONS THAT plan to pull the plug on their midrange server platforms and replace them entirely with newer technologies may run a high risk of failure in the next few years.

If the migration isn't carefully planned, and if all options to system replacement aren't considered, users could end up with more costly and less manageable systems, according to a recent Gartner Group, Inc. report

Platform overhauls, page 51

PLATFORM MIGRATION STRATEGIES	
Method	Risk
■ Maintain (avoid or delay change)	■ Inflexibility, expense of old technology
■ Refurbish (re-engineer/modernize)	■ Some technologies incapable of evolving
■ Consolidate (reduce the variety)	■ May force different workloads together
■ Surround (add/partially replace)	■ Makes the environment less manageable
■ Replace (replace all systems)	■ Makes a fallback alternative difficult

Source: Gartner Group, Inc., Stamford, Conn.

Forget bells, whistles. We want battery life!

IBM SPSS/PC

"Everyone is convinced there is a worldwide conspiracy not to give us enough battery life."

— Asmar Madyun, technical support manager, AT&T

Laptop survey shows users want the basics

By Mindy Blodgett

THE LAPTOP INDUSTRY has been pushing faster chip speeds and advanced features such as active-matrix color screens, but users are unhappy about the lack of simple features such as long battery life.

That is according to a recent survey of 2,000 users in the U.S. and Europe by H&M Consulting, Inc. in Sunnyvale, Calif.

The survey said 77% of users reported battery life of less than two hours on a single charge — a woefully inadequate amount of runtime, according to users.

"It's gotten to a point where I think everyone is convinced there is a worldwide conspiracy

Battery life, page 50

Studies knock NC hype

By April Jacobs

AT LEAST TWO industry analysts are erring on the side of caution when it comes to the network computer; they say they aren't convinced it is a viable replacement for the PC.

Two new studies — one by Zona Research, Inc. in Redwood City, Calif., and the other by Q.E.D., Inc. in White Plains, N.Y. — indicate that the network computer will serve as a replacement for terminal-based

Studies, page 50

SUDDENLY, EUROPEAN STANDARDS ARE A GORGEOUS NECESSITY.

If you require a 17" monitor for your media-intensive applications, don't just settle for a bigger system. Acquire a better one. A media-ready Nokia 447X.

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VESA standards for display clarity. Their spacious 15.7" viewing area boasts an aperture grill of .25 mm and refresh rates of 150 Hz. They are capable of 1600 x 1200 resolution, which translates directly to improved working

conditions and user-sensitivity. They are also the first to be TCO-95 certified for greatly reduced screen emissions.

What's more, dual-powered stereo speakers in front combine with a subwoofer in the swivel/tilt base to project audio that is properly shaped and sensational. Combined with its standard in-bezel microphone, the media-ready series enables a complete convergence of computing and communications, which makes the new 447X series a necessity for anyone making full use of their computer.

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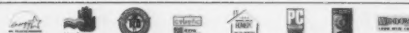
NOKIA

447X—High-resolution display, ideal for graphics-intensive applications

447X—Professional-caliber display with integrated speakers, sub-woofer, and microphone

447X—Adds to X series features with built-in color video camera

*Models are continuously updated. Size of LCD measured diagonally, bezel viewing area is slightly less. Manufactured and designed in Finland in an ISO 9001 approved environment. ©1996 Nokia Display Products, Inc. All rights reserved. Reproduction and distribution are prohibited without the express written permission of Nokia Display Products, Inc. All other trademarks are the sole property of their respective companies.



Studies knock net computer hype

CONTINUED FROM PAGE 49

systems, not PCs.

Both research firms say one of the major stumbling blocks for network computers will be a narrow selection of applications available compared with PCs.

Because network computers don't have local storage, users will be able to access only applications that are available on servers or mainframes.

"It's certainly not for everybody," said Greg Blatnik, vice president of Zona Research. He said the network computer is still in its infancy and may mature into forms that make it more attractive to compete with the PC.

Only about one-third of the respondents of 55 sites interviewed in Zona's study said they found the network computer appropriate for their users.

Blatnik said respondents either were attracted to the idea of the network computer for its easier and less costly adminis-

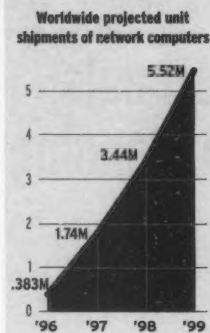
tration than today's PCs, or they were turned off by limited functionality and dependence on networks and servers for operability.

Both studies concluded that the network computer's best use now is in replacing terminals.

Q.E.D. determined that with 10.5 million terminals currently installed, network computers should have a good market to fill, according to Mirek Stevenson, the company's chairman.

"The [network computer] is a good upgrade for the nonprogrammable terminal, but it doesn't give the flexibility of a PC," Stevenson said.

Q.E.D., which polled 3,000 consumers and 1,000 corporations for its study, found that in industries such as retail and wholesale distribution, health care and professional services, interest in network computers was lower — and so was the installed base of terminals.



Source: Zona Research, Inc., Redwood City, Calif.

In other segments such as discrete manufacturing, where terminal-based systems are popular and single applications for functions such as data entry and customer service are needed on a large scale, network computers may be more appropriate, the study said.

Battery life wanted for laptops

CONTINUED FROM PAGE 49

not to give us enough battery life," said Asmar Madyun, technical support manager at the network services division of AT&T Corp. in Berkeley, N.J. "I just don't believe that the technology isn't there to deal with this problem."

Laptop vendors say the faster chips and advances such as multimedia applications sap notebooks of battery life — but they continue to release more powerful machines, such as the recent spate of 150-MHz Pentium portables. Vendors are expected to release 166-MHz Pentium notebooks next year.

Battery vendors, meanwhile, are working on new technology that lengthens use, but products aren't expected until late next year [CW, Oct. 21].

"A battery that would last four or more hours would be great," said Steven Wittner, information systems manager at Centex Construction Co. in Dallas.

Also in the survey, 56% of

those asked cited software installation and support complexity as being among the greatest barriers to greater usage of their portables, and 44% cited hardware/software incompatibility.

When asked to list their main complaints about portables, 29% said their notebooks were difficult to use and another 21% said they had problems with their machines that they didn't expect. For instance, Mark Macgillivray, an analyst at H&M, said many users complained about not being able to get CD-ROMs to work. A lack of wireless communications support also frustrated many users.

"In general, users didn't feel that the cost of the machines was justified by the functionality," Macgillivray said. "We hear a lot from the industry about things like voice recognition and high speed, but the bottom line is that people want these things to be easy to use."

David.



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Platform overhauls need planning

CONTINUED FROM PAGE 49

on server consolidation and migration strategies.

A gradual, step-by-step approach to replacing older hardware and applications

— unless system functionality or management issues require immediate action — could prove to be much safer and cheaper, the Gartner report said.

Some companies are following the slow, steady track. "We don't want to simply chuck our legacy system out and go to Windows NT. We would like to work with both" in the short term, at least, said Nancy Estep, a systems coordinator at Security Forces, Inc. in Charlotte, N.C.

The company is considering moving some of its customized applications off its legacy Data General Corp. minicomputer to an NT environment. Although the new systems will bring in added functionality and packaged software, the older DG sys-

tem will continue to provide benefits such as substantial storage capacity, Estep said.

According to Gartner, examples of total system replacement include moving from mainframes to Unix or from proprietary systems to Unix or Windows NT. An application replacement involves migrating from customized software to packaged environments such as SAP AG's R/3 suite.

In fact, depending on the kinds of issues forcing the migration, users may be better off considering other options to total replacement, according to Gartner.

SURROUND STRATEGY

For instance, if users need additional processing power for a new application — and if interoperability with legacy systems is achievable — they could consider "surrounding" their exist-

ing servers with newer servers, Gartner said.

Similarly, corporations that seek to migrate to new technologies because of pressing management issues, such as the costs of keeping legacy systems up and running, may want to consider systems consolidation options. That approach reduces the variety of existing systems and makes centralized management easier, the report said.

"Every single system vendor is trying to integrate" new technologies into its installed base, said Dan Kuznetsky, an analyst at International Data Corp. in Framingham, Mass.

"But the larger the current base is, the harder it is for them to bring in new technologies without breaking something, somewhere," Kuznetsky added. Integrating all the pieces and making it work in an enterprise will require extensive groundwork and planning, he said.

New storage for LANs, WANs

By Matt Hamblen

IMPACTDATA is offering a group of new storage hardware and software products for large network users that the company said will give access to data across many computing platforms as fast as the speed of a network.

Called the Distributed Storage Node Architecture (DSNA) by Impactdata, a division of Datatape, Inc. in Monrovia, Calif., the technology includes a network server, tape drive and DSNA software designed to enable an application anywhere on a LAN or WAN to access and use data as if it were stored locally. Impactdata's Network Peripheral Adapter, a controller and file server, was designed to serve as the cornerstone of DSNA. Available in the first quarter next year, pricing will start at \$50,000.

One expected advantage of DSNA is that it can be configured with a choice of vendor

hardware, said Thomas M. Ruwart, assistant director of the laboratory for computational science and engineering at the University of Minnesota in Minneapolis.

"It's ease of use has enticed us," Ruwart said. Users can "integrate the DSNA into their current environments, thus maintaining their original capital investment in archiving hardware and media," he added.

Ruwart plans to evaluate DSNA products with the university's existing tape subsystems from Ampex Corp. in Redwood City, Calif. In addition to its tape storage, the university has to manage about 750G bytes of data stored on disk.

Officials at Impactdata said a typical user of DSNA will have at least 100G bytes of online storage and produce large amounts of data that need to be stored and retrieved at high speeds on distributed networks. DSNA software and hardware will be available early next year.

And Goliath.



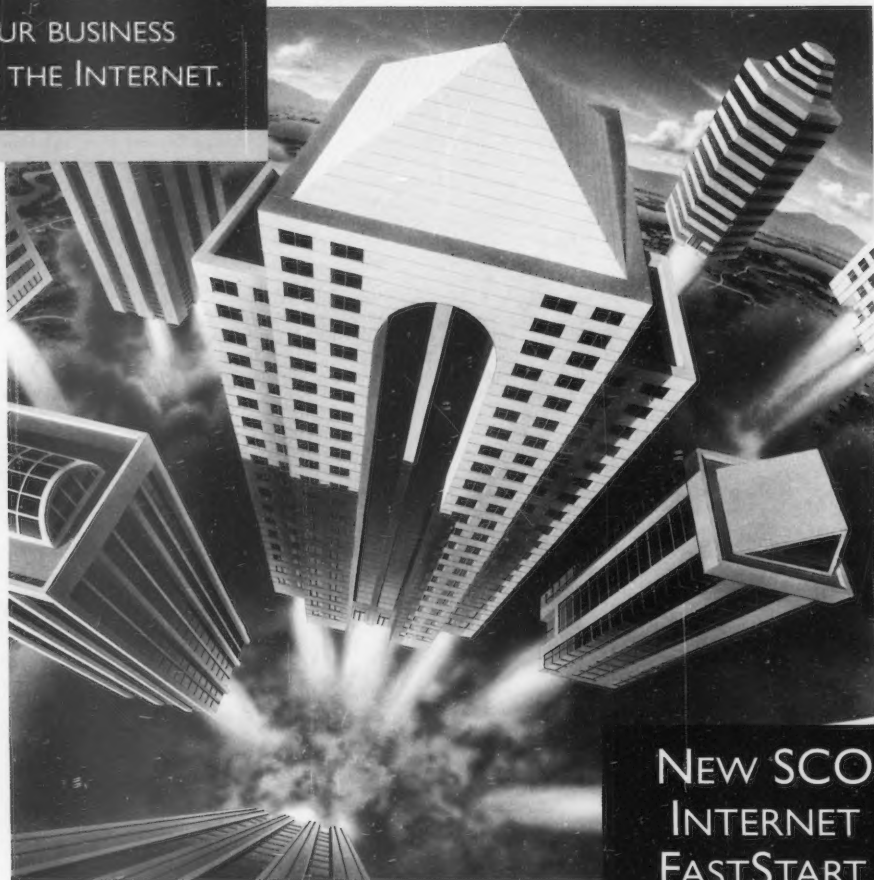
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Software

Client/Server • Development • Operating Systems

MONEY MATTERS

Software license fees are only the tip of the cost iceberg for companies that migrate to enterprise client/server applications. According to a Forrester Research poll, more than half the companies spent more than \$5 million to implement one application; 26% paid more than \$10 million.

What was the service-to-license ratio for your largest implementation project?

1 to 1	3%
2 to 1	15%
3 to 1	13%
4 to 1	10%
5 to 1	17%
More than 5 to 1	17%
Wouldn't say/ Didn't know	25%

Base: 40 companies

Source: Forrester Research, Inc., Cambridge Mass.

Briefs

Amdahl warehouses

Amdahl Corp. in Sunnyvale, Calif., last week announced plans to sell and support a data warehouse query engine developed by CrossZ Software in Mitchell Field, N.Y. Amdahl will market CrossZ's Query-Object System to corporate users, particularly in the telecommunications market, and to resellers and distributors. QueryObject condenses large data sets into objects that can be searched by end users equipped with PCs.

OLAP on the Web

Information Advantage, Inc. in Minneapolis this week will announce plans to support ActiveX and drag-and-drop development to make it easier to customize its DecisionSuite online analytical processing tools. Visual design of add-in modules should be possible by next April, the company said. Its front-end software will then be rewritten as ActiveX components next summer, with support for both PCs and World Wide Web browsers. The plans are part of a new DecisionSuite Framework that will be detailed this week.

• Decision-support software being tailored to specific markets

Vendors go vertical

By Craig Stedman

ARMED WITH promises of speedier implementations, some decision-support vendors have started tailoring their software to specific vertical markets. But prospective users' reactions have been mixed about that approach.

The vertical button has been pushed hardest by Comshare, Inc., which this week will announce a new version of its Commander FDC financial reporting software aimed at manufacturers. The Ann Arbor, Mich., company began vertically customizing all its tools in the past nine months.

Others are following the same path. For example, Platinum Technology, Inc. in Oakbrook Terrace, Ill., introduced a decision-support development package for insurance companies earlier this year. VMark Software, Inc. in Westboro, Mass., is aiming data mart tools that it announced in November at ver-

tical-oriented resellers. And Oracle Corp. is looking at tailoring upcoming data mart packages for specific industries, though it hasn't committed itself.

The idea is to give customers

production with less tinkering and adaptation than general-purpose tools require. Some users said that could potentially save time and make their lives less stressful.

VERTICAL MARKET USES FOR WAREHOUSED DATA

■ Finance - Finding consumers who will be good marketing targets

■ Health care - Controlling patient costs in managed-care programs

■ Retail - Tailoring promotions to narrower customer bases

Source: International Data Corp., Framingham, Mass.

in markets such as finance, retail and health care a user interface that already speaks their language and can be put into

MONTHS OF IMPLEMENTATION

Giddings & Lewis, Inc. spent almost two months implementing Commander FDC several years ago, even with two consultants from Comshare on hand. "If there were [manufacturing-oriented] templates that you could take and go forward with, that would make it a lot easier," said Terri Groth, accounting manager at the machine tool maker in Fond du Lac, Wis.

Raja Kochar, a consultant who develops decision-support applications for consumer goods companies, said tailored market planning software that Comshare introduced this year would have let him complete a beverage-related project in less than 60 days. It took nine

Vertical, page 58

Microsoft's Java compiler plans unclear

By Sharon Gaudin

MICROSOFT CORP. says it is trying to make Java run faster and better on Windows.

But even Microsoft officials seem unsure how they will do that.

The company has improved its implementation of the Java Virtual Machine, which lets Java applications run on Windows. It also has released class libraries that will add Windows functions to Java applications.

But statements from Microsoft officials differ widely on the question of whether the company is working on a native code compiler for Sun Microsystems, Inc. Java that will turn Java

Microsoft, page 58

"There are enough platform-specific languages around."

- Dave Kelly, Hurwitz Group

Software metering tools save users money

By Patrick Dryden

SAVVY INFORMATION systems managers rely on software metering tools to monitor peak

usage of commercial software titles when they have to keep an eye on budgets and unruly users.

Software metering, page 54

Licensing lessons

► Users question vendors' current methods

By Lisa Picarille

DESPITE RECENT overhauls in licensing policies from vendors such as Microsoft Corp., some users question whether current software licensing methods are a bargain or a boondoggle.

Although licensing options and pricing vary widely among software providers, some users claim it is often hard to determine which vendor will give you the best deal or what exactly you are buying.

"It has gotten out of hand. Licensing is way too complicated," said John Nelson, manager of technical support at Denver Water in Denver, which has more than 750 users and "at least a half-dozen people dealing with licensing in one way or another."

Nelson suggested maybe a

Licensing, page 54

COMING TO TERMS

■ **Site license:** All users at designated company or location access the software

■ **Network license:** A designated number of specific users access the software from a server

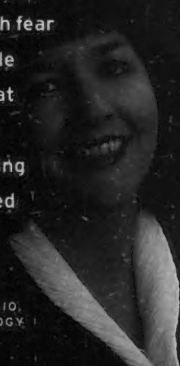
■ **Concurrent:** A specific number of users access the software simultaneously from a server

■ **Individual:** A user installs the software on a single machine for his own use

"The Software Publishers Association has put enough fear of God in people these days that it's not worth the risk of giving users unlimited access to software."

- DIANE DELVECCHIO, SMITH TECHNOLOGY

CLOSER
LOOK



Eicon updates mainframe-to-PC software

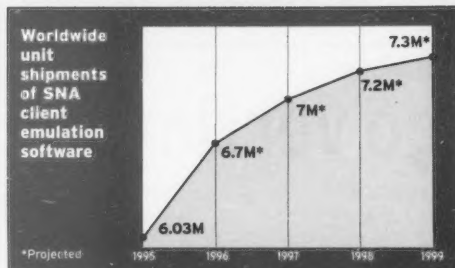
By Tim Ouellette

EICON TECHNOLOGY CORP. is shipping new host access software that promises to mask mainframe complexity from users and network administrators.

Aviva Mainframe Edition 7.2 adds support for Microsoft Corp.'s Windows NT 4.0, Object Linking and Embedding 2.0 and ActiveX.

This lets users access mainframe data from the safety of their familiar business applications, such as a spreadsheet.

"We found out when moving to Windows NT 4.0 that our previous emulation program would not support the platform," said Brian Lash, a technical consultant at a major airline



Source: International Data Corp., Framingham, Mass.

in the Midwest.

"We are using Aviva to have one of our mission-critical applications, which lets controllers assign aircraft to various flights, communicate directly with the mainframe," Lash said. "It's a

juggling act."

Aviva also includes desktop-based Data Link Switching (DLSw), a technology that carries SNA data packets over TCP/IP networks. Although DLSw is common, it requires

both an SNA network and DLSw-compatible routers on both ends.

Eicon simplifies this by requiring only a TCP/IP stack on the PC, eliminating setup and maintenance tasks for administrators. Thus remote users don't need to go through separate gateways.

MORE UPGRADES

With big iron shops interested in opening up mainframes to more and more users inside and outside the company [CW, Nov. 4], users can expect continued upgrades of this type in the terminal emulation markets. And although Web browser access to mainframes is considered the next big thing, one observer says

traditional emulation will see solid demand in the near future.

"There is still a healthy appetite out there for terminal emulation. Mainframes aren't going away," said Eric Hindin, an analyst at The Yankee Group in Boston.

Hindin added that Aviva is as well-rounded as any of its competitors in the host access market. Competitors to Montreal-based Eicon include market leader Attachmate Corp. in Bellevue, Wash., Wall Data, Inc. and IBM.

Other new features in the \$295 Aviva 7.2 package include support for Novell, Inc.'s SNA access product, NetWare for SAA 2.2, and a mainframe print job control module. This supports Windows NT print services and avoids the requirement for a separate host print management server.

Software metering tools save money

CONTINUED FROM PAGE 53

They can save money by buying only as many copies as their users need. And they can assure vendors and watchdogs such as the Software Publishers Association (SPA) that they run only what they bought.

Managers also report that metering tools help track users' activity and control such problems as games and unauthorized browser versions.

Many corporations have launched initiatives "to get legal and keep it that way through policies and monitoring," said Kathrin Winkler, senior consultant at The Registry, Inc., a network consultancy in Newton, Mass. "Software metering is part of the overall attempt to control desktop computers and lower the overall cost."

Managers at Lexis-Nexis estimated concurrent usage much too high when they negotiated group licenses for standard applications needed by 900 users at the company's headquarters in Miamisburg, Ohio, said Eric Snell, a systems software engineer at the information provider.

Today, more than 2,000 users share the same applications with only a slight increase in the number of licenses, Snell said. Lexis-Nexis used the Express Meter tool from WRQ, Inc. in Seattle to accurately track peak usage.

"Without metering, we would have had to double our licenses when our user population doubled," Snell said.

Engineering and architecture

firm SSOE, Inc. adopted SoftTrack from On Technology Corp. in Cambridge, Mass., when Microsoft Corp. began offering concurrent licenses to organizations that could track usage, said David Lee, senior systems analyst at SSOE in Toledo, Ohio.

"Purchasing Microsoft Office for 300 PCs is very expensive when many stations will run design software most of the time," Lee said. "We saved a huge amount by knowing how many users run a package at any time."

EASY ENFORCEMENT

The metering function built in to Intel Corp.'s LANDesk Management Suite and other products makes enforcing license restrictions easy, said Tim Munn, computer services director at the School of Pharmacy at the University of Maryland in Baltimore.

Munn had previously tried to configure access privileges on a Novell, Inc. NetWare network to limit which applications more than 300 users could reach. "That wasn't ideal because we had to make so many changes and tell users they couldn't have access to certain applications," Munn said. "Now control isn't a burden."

Metering helps Smith Technology Corp. in Philadelphia "stay legal without overpurchasing," said Diane DelVecchio, a systems engineer at the company. Because the environmental services company recognizes

the "audit potential" from vendors and the SPA, she said, it supervises 900 users at 25 sites with the SabertLAN Workstation suite from McAfee Associates, Inc. in Santa Clara, Calif.

"All it takes is one complaint to put you in turmoil," DelVecchio said. "Even if you're in compliance, you still have to pull all your paperwork. Metering not only helps you comply with your license, but lets you track all the serial numbers."

Similar fears inspired the adoption of Hanover, N.H.-based Tally Systems Corp.'s CentaMeter at Central Vermont Public Service Corp.

"The biggest reason we meter is in case a disgruntled employee tells on us," said Tracy Adams, technical services manager at the Rutland, Vt., utility. "We may not be 100% in compliance with our licenses, but metering shows our honest effort."

SIDE BENEFITS

As administrators apply metering tools to control software costs and license compliance, they discover other management benefits. Several managers said they listed game titles in the meter's library for monitoring, then set usage level to zero or allowed games to run only at certain times.

"Besides restricting games, we needed to back up our Internet usage policy by blocking browsers," said Ken Newton, network systems technician at Corning Revereware, Inc. in Clinton, Ill.

Licensing lessons

CONTINUED FROM PAGE 53

new licensing model is needed. "Maybe some sort of simple but standard agreement would eliminate all the hassles," Nelson said. "But that isn't likely to happen."

One industry analyst agreed. Jeff Tarter, editor of "Softletter," an industry newsletter in Watertown, Mass., said that because vendors make the bulk of their revenue on licensing, they will never make it easy to compare prices.

"It is like a car salesman and car buyers. The car salesman sells a car three times a day. But the buyer maybe purchases one car every three years. So who do you think is in a better position to take advantage of the other?" Tarter asked.

COMPLEX AGREEMENTS

Most software companies said agreements can seem complicated because they are offering customers more licensing options than ever.

And every new vendor agreement adds one more layer of complexity to a corporate licensing picture, one user said.

"We are ruthless about keeping down the number of software companies we deal with to about 20 major vendors," said John Parkinson, chief technol-

gist at Ernst & Young in Los Calinas, Texas.

OPTIONS LOST

Parkinson said that because Ernst & Young's more than 20,000 mobile users must have the software installed on their hard disks, they aren't able to take advantage of cost saving concurrent licensing options.

Parkinson said he would like to see a licensing scheme where local metering software is installed on each mobile system and then synchronized with network-based records to determine what applications were used and for how long. That data would ultimately determine how much Ernst & Young would pay for using the software.

"The first [vendor] that caves in and moves to a pay-by-use strategy will clean up because that is what the users want."

— John Parkinson, Ernst & Young

"The first [vendor] that caves in and moves to a pay-by-use strategy will clean up because that is what the users want," Parkinson said.

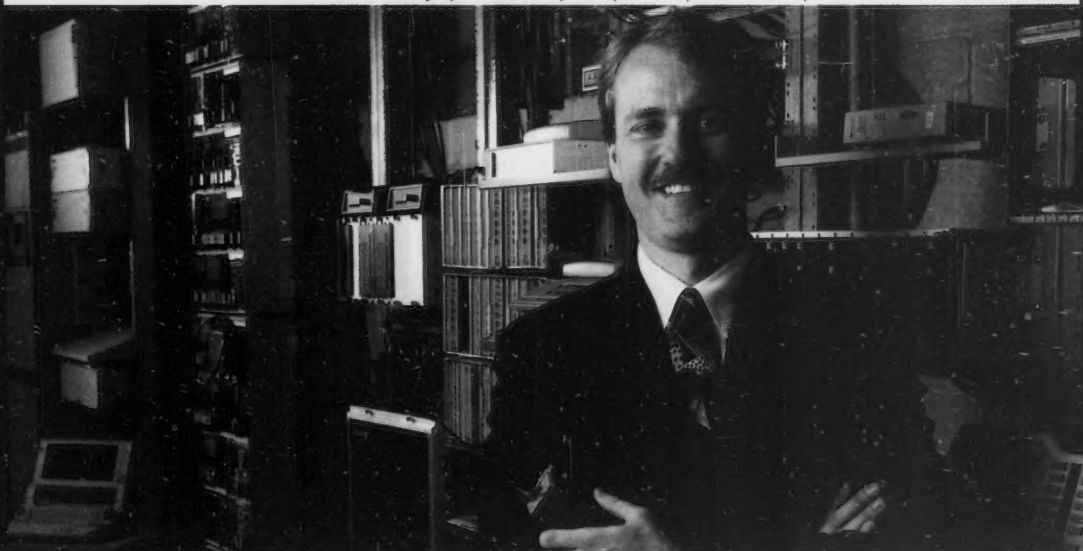
Tarter added that information systems managers are typically focused on the technology and that pricing issues, although just as important, are often secondary.

"You don't get to become an IS manager by apprenticing as a purchasing agent," Tarter added.

THE BUILDERS

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DEVELOPMENT TOOLS

IBM has Visual Basic in its sights

By Howard Millman

MICROSOFT CORP. Visual Basic must prepare itself; it's about to take some heat from a formidable new contender — IBM's Visual Age for Basic.

IBM's entry in the Basic market appears — at least from a pure technology viewpoint — well-equipped to chip away at Microsoft's Visual Basic leadership role. It can do that by providing an integrated development environment that is syntax-compatible with Visual Basic, fully object-oriented and cross-platform. And if that description doesn't include enough buzzwords, Visual Age for Basic transparently supports System Object Model objects, OpenDoc components in OS/2 and OLE objects.

TEST RUN

While testing a late beta release of Version 1.0, I easily and quickly developed several small applications using the product's three primary components: a forms builder/editor, a project window and a tool box of visual objects.

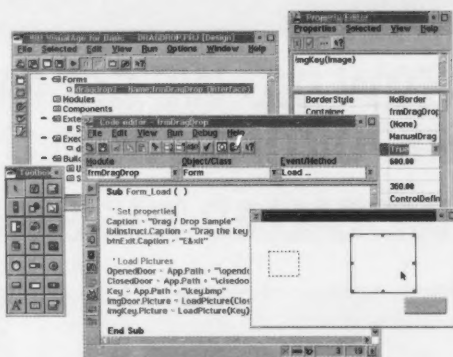
My development efforts followed the

usual route — design the user interface, specify the behavior and functionality of the application and provide data access. The graphical user interface, built with the forms designer, serves as the foundation for all user-built applications.

Users populate it with objects and components (IBM calls them parts), such as command buttons, text boxes and option boxes, selected from the Toolbox.

Developers can satisfy the artist within by resizing, relocating and redesigning the components. The Property Editor sets the attributes of the forms and their embedded components, including descriptive names, colors and fonts. An integrated Menu Editor conveniently embeds pull-down or pop-up menus.

The Code Editor lets users associate behavior with the form's components. A



IBM's Visual Age for Basic delivers everything you've really wanted in Microsoft's Visual Basic

staple of visual development environments, this type of event-driven programming simplifies embedding function calls and procedures such as those used to invoke dynamic SQL statements. To change a component's associated procedure, a double-click calls a template for the procedure. The Code Editor's syntax checker will detect spelling and other clerical-type errors.

When I keyed in syntax errors — something I find very easy to do — the integrated debugger immediately detected the offenders. As with most Basic products, the finished applications are interpreted, not compiled.

SUITABLE SCALABILITY

Although the product's dual nature readily lends itself to building simple applications, it would be overkill to use it to

develop a postage stamp catalog.

During my test drive, I developed a healthy regard for the product's power. Its modular, object-oriented architecture should enable it to scale for developing larger applications to run in traditional client/server environments.

In addition, IBM adds functionality to its Visual Age for Basic by fully embracing all the tenets of object programming.

For example, it lets users design, import or export their own classes, and it enables communication with hosts and databases. One of the back-end databases it

connects with is IBM's DB2.

Although it will connect to a variety of other databases through Open Database Connectivity, it supports server-side stored procedures only for DB2.

But if you intend to swim in this pond, heed this note of caution: You will need prior familiarity with object-oriented programming concepts and techniques. To help you flatten the learning curve, Visual Age for Basic's online docu-

mentation is intelligently organized and comprehensive. It includes tutorials to guide you through its many features and serves as an entry- or midlevel introduction to Visual Basic programming.

Millman operates Data System Services Group, a networking and problem-solving consultancy in Croton, N.Y. He is co-author of the forthcoming Netscape Server Bible from IDG Books. He can be reached at hmillman@mcimail.com.

PRODUCT REVIEW

IBM Visual Age for Basic

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And in this corner

Although IBM's Visual Age for Basic is a worthy competitor to Microsoft's Visual Basic, they both face another contender: Java. A platform-independent, object-oriented, World Wide Web-centric computing environment, Java has substantially benefited from earlier object-oriented languages such as C++, Smalltalk and Objective C.

For all of Visual Age for Basic's (and Visual Basic's) many advantages in building traditional client/server LAN applications, developers contemplating building large systems should consider the likelihood that their applications will have to run over the Internet and on intranets.

Under those circumstances, Java may prove to be a more suitable development environment. An IBM spokesman acknowledged that the company may have to add Web-centric features to future releases.

In its league, Visual Age for Basic is worthy of consideration for developing Basic applications and maintaining applications built with Visual Basic. Aside from Visual Basic controls, Visual Age for Basic will readily accept a port of Visual Basic code for applications that run on Windows platforms. Overall, the environment is well-conceived, efficient in execution and easy to use. — Howard Millman

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APPLICATION DEVELOPMENT

FRANKLY SPEAKING

Java makes Microsoft look like IBM

FRANK HAYES

"[Java is] just a language like Visual Basic or C or any of the languages that we support."
— Microsoft Chairman Bill Gates, in a March 1996 Computerworld interview.

FOR ALL THE coffee in Seattle, Microsoft still doesn't get Java.

At Comdex, one Microsoft product manager floated a trial balloon for a new Java strategy: building Windows-only Java compilers and tools that would make Microsoft Java incompatible with other vendors' versions.

Microsoft now denies the plan to gulp down Java and spit it out as just another language

for writing Windows applications. But that's what you do with a language if you're Microsoft. It's a lesson Microsoft learned from IBM and Digital and bygone generations of system vendors: You write compilers that will generate programs that only run on your systems.

That worked for IBM's Cobol and Microsoft's C and C++. It will even work for Gates' beloved Basic starting next year, when Microsoft adds a compiler to Visual Basic 5.

But Java isn't just another language.

True, to programmers, Java resembles a cleaner, less complex version of C++. But who really needs another C++?

No, Java is defined by what it does for users: Java makes it as easy to download and run a program as it is to download a World Wide Web page or a picture across the Internet — whether it's on a PC, a network computer, a Macintosh or a Unix workstation.

That's why native-code compilers and proprietary extensions won't derail Java. Java's ability to run anywhere is the real reason it's so popular. It means software can be tuned to meet business needs, not platform requirements.

And that's such a radical notion that even hidebound IS departments creaking along with legacy mainframes and aging Cobol code understand that Java is a great new way to solve some kinds of business problems.

So why can't all the hip, smart people who run Microsoft figure out that Java isn't just another language?

Maybe Microsoft has the same problem IBM once had



with PCs. IBM didn't invent desktop computers, but IBM's brand name sparked the PC's explosive growth, and IBM led the PC market for years. Clearly, PCs were important to Big Blue.

But IBM's executives believed mainframe applications were, and would continue to be, the center of the universe for corporate IS shops. As a result, IBM missed a lot of opportunities in stand-alone PC software and lat-

er in workgroup applications — those failures took their toll during IBM's long, painful slide from the top.

Now Microsoft has the same unhealthy attachment to PC software that IBM once had to mainframe software. PC software is where Microsoft's profits are. More important, it's where the hearts and minds of Microsoft's executives are. It just doesn't happen to be where the future is.

PC software will continue to be important to IS shops, just as mainframes will. In some places, mainframes — or PCs — will even continue to be the center of the universe. But for most IS shops, the future belongs to network-oriented, run-anywhere applications — the kind you build with Java.

And if Microsoft can't come to grips with that, it may be headed for a long, painful slide.

Hayes is Computerworld's staff columnist.

Microsoft's Java compiler

CONTINUED FROM PAGE 53

source code into applications that will run faster on Windows — but only on Windows.

Less than two weeks ago, Charles Fitzgerald, program manager at Microsoft's Internet Platform and Tools Division, confirmed published reports that Microsoft is working on the compiler but was far from a completion date. Last week,

Microsoft may not be the company to come out with it.

Some users and analysts said they are concerned that Microsoft's Java development efforts could take the punch out of the programming language.

Patrick Connolly, president of Investors Edge, a development company in San Francisco with an online investment site, said a

Windows-centric compiler would make sense for Microsoft because it would help sell its operating systems. But it would also weaken the cross-platform appeal of Java, he said.

Java applications written with a native code compiler for one operating system can be run on another, but they won't have the extended functions specific to the original platform. Java applications that use specific Windows functions — Paint or Draw routines, for example — won't be understood on another platform; those functions will run only under Windows.

"It's the option for somebody writing a Windows application. Why should they be excluded from writing in Java without taking a big performance hit and a big functionality hit?" Fitzgerald said.

Not everyone agrees.

"There are enough platform-specific languages around today, like C++, so turning Java into just another platform-specific language could quite possibly kill any hope it had of succeeding," Kelly said. "People would like to see basic improvements in Java, from capability to speed. Both companies could be paying attention to that."

SPEED FIRST

Kelly said the move has been inevitable because the entire industry is focused on speed. Fast applications will always win out — even over cross-platform applications, he said.

And that trade-off is fine with Scot Wingo, co-founder of Stingray Software, Inc., a Chapel Hill, N.C., company that develops Java class libraries.

"The Windows market is 90% of what people are going to be using Java on," Wingo said. "Developers feel their hands are tied because right now Java is watered down. By enhancing it for Windows, that makes it so much more powerful, and you only lose 10% of the market. That's not a bad decision."

Sun just announced improvements to Version 1.1 of the Java Developers Kit, the most noted of which makes Java run faster on Windows. Estimates of how much faster aren't available yet.

Vertical markets

CONTINUED FROM PAGE 53

months to write the application from the ground up after general-purpose tools failed to fit the bill, said Kochar, who works at Legacy Technology, Inc. in Burlington, Mass.

TOUGH SELL

But several information systems managers who are building data warehouses

said they were skeptical about the value of vertical tailoring. Even within industries, applications can differ so much from company to company that heavy customization is needed no matter what, they said.

"Every insurance company has got vastly different applications," said Bob Peck, chief information officer at Allianz Insurance Co. in Burbank, Calif.

DECISION-SUPPORT SOFTWARE

"I'm afraid we'd just get a template and end up tweaking it so much that its value would end up being questionable."

Meri Lea Miller, data warehouse project manager at the Municipal Electric Authority of Georgia in Atlanta, said Municipal Electric has "very unique" applications compared with other utilities. Tailored tools "probably

wouldn't do that much for us," Miller said.

For many vendors, the vertical approach "is plan B," said Brian Murphy, an analyst at The Yankee Group in Boston. "The whole data warehousing thing hasn't really gushed money for these people, so they might as well go back to the drawing board," Murphy said.

"By enhancing [Java] for Windows, ... you only lose 10% of the market."

— Scot Wingo, Stingray Software

Fitzgerald said there must have been some confusion because Microsoft is only considering whether to build the compiler.

"I would guess it's a trial balloon or something they're working on and are just not ready to discuss yet," said Dave Kelly, an analyst at Hurwitz Group, Inc. in Newton, Mass. "I'm sure Microsoft is working on ways to embrace and extend Java and capture Java programmers in the Windows platform. Whether it's something they would release or not is the question."

In the second interview, Fitzgerald said a compiler makes sense and may become a reality some day. But he added that Mi-

NEW PRODUCT

THOMSON SOFTWARE PRODUCTS has announced ObjectAda for Windows and ObjectAda for Unix software development environments for creating applications based on the object-oriented Ada 95 language.

According to the San Diego company, ObjectAda has open

interfaces to other languages and full compatibility with the proven Ada 83 language. Pricing starts at \$595 for a Windows Professional Edition and \$8,000 for ObjectAda for Unix.

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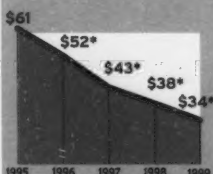
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Briefs

Novell, Vinca partner

Novell, Inc. and Vinca Corp. have inked a strategic marketing alliance that calls for the two firms to jointly resell and train customers on their respective fault-tolerant server-mirroring products. Under the terms of the pact, Vinca's StandbyServer will be available to Novell IntranetWare, NetWare and SFT III customers through resellers. Additionally, product information, including an option for integrated installation of StandbyServer and SFT III will be added to the next version of IntranetWare due in February.

WAN connectivity

NetManage, Inc. in Cupertino, Calif., has begun shipping Chameleon HostLink, software that provides mainframe and IBM AS/400 terminal and print emulation over either SNA or TCP/IP. The package includes file-and-print sharing tools, integrated electronic mail, Internet access software and an Internet newsreader. It costs \$400.

SoftSwitch cuts plans

Lotus Development Corp.'s SoftSwitch division is curtailing plans to support the HP-UX Unix operating system on its Lotus Messaging Switch 2.0. It claims most of its users are opting for the company's upcoming AIX version. Previously, the Wayne, Pa., division had come under fire for offering the switch on only Data General Corp. platforms [CW, May 6].

Downshifting

► Internetworking vendors aim at smaller offices

By Bob Wallace

INTERNETWORKING vendors that concentrate on the small or home office market may benefit large organizations by supplying a wider range of products for branch offices and telecommuters. But users fear overzealous vendors will overlook quality in the fight for market share.

The Big Four — 3Com Corp., Cisco Systems, Inc., Bay Networks, Inc. and Cabletron Systems, Inc. — and many smaller firms have turned their attention in part from high-end to low-end networking.

"I'd prefer to see more ven-

dors do what 3Com has done — design and build a complete manufacturing system before completing design of the product," said Steve Lopez, network manager at the National Board of Medical Examiners in Philadelphia. "What I see all too often is vendors rushing product to market and losing control by dealing with third-party fabricators. The result can be serious product bugs and recalls. It's expensive — but best — for vendors to retain total control."

But done correctly, a line of products designed for small office users could make it easier to upgrade branch offices for in-



Steve Lopez:

"It's expensive — but best — for vendors to retain total control"

tranets and other applications, users said.

The tidal wave of small office offerings runs the gamut from rock-bottom-priced remote of-

Small offices, page 67

OS/2 users are faced with install obstacles

By Laura DiDio

IBM OS/2 Warp 4 users are frustrated and indignant that major PC hardware vendors don't preload the IBM operating system, forcing users to do their own installations and fend for themselves on technical support.

Currently, 32 domestic PC hardware vendors, including IBM, offer to preload OS/2 Warp on their hardware. But most of the major PC manufacturers, including Compaq Computer Corp., Dell Computer Corp. and Toshiba Corp., don't preload the IBM operating system.

This is in sharp contrast to Windows 95, which comes preloaded on PCs and laptops from virtually every systems vendor.

David Knight, assistant vice president and manager of server technical services at Trustmark National Bank in Jackson, Miss., said he is particularly rankled by the lack of after-market technical support for OS/2 Warp by major PC makers.

"Let's keep a good thing a secret. That way, IBM will have more time to give us continued excellent service and support."

— Dan McCrary, Mazda

"The PC makers refuse us technical support. Dell just tells us outright, 'If you have OS/2 Warp, you're on your own,'" Knight said. Compaq, he added, will at least try to troubleshoot OS/2 Warp-related problems, "but it usually takes a while."

In response, John Albee, IBM's program manager for Warp, page 69

ASCEND'S NEW DSL LINE

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ADSL	This month	\$1,750
DSLpipe (ADSL-DMT)	To be determined	To be determined

TELECOMMUNICATIONS

Expanding copper pipes

► Ascend switches aim to ease digital links

By Kim Girard

REMOTE ACCESS GIANT Ascend Communications, Inc. plans today to release a set of products designed to let carriers and Internet service providers offer high-speed Digital Subscriber Line (DSL) links to the Internet.

DSL uses existing copper wires to carry digital traffic be-

tween a user and a carrier's central office. Ascend is pitching DSL as an Internet access technology that is easier to use and eventually will offer higher speeds than alternatives such as Integrated Services Digital Network (ISDN).

MultiDSL is a line of DSL cards for Ascend's wide-area switches, the Max 4002, Max 4004 and Max TNT. The company will also offer DSL-supporting bridges and routers that

Ascend, page 67

E-mail switch bridges messaging, groupware

By Barb Cole

WORLD TALK CORP. is readying software designed to help companies bridge the gap between proprietary and Internet messaging systems and potentially link them to electronic commerce applications.

Several Worldtalk customers this month will begin beta-testing NetTalk, server software that combines security, intranet electronic mail and directory services with messaging switching and directory synchronization technology. The software bundle will be announced this week at the Internet World trade show in New York.

NetTalk provides Post Office Protocol 3 and Simple Mail Transport Protocol E-mail services, a Lightweight Directory Access Protocol directory and connectors to Microsoft Corp. Exchange, Lotus Development Corp. Notes and several LAN-based mail systems.

To help make messaging E-mail, page 64

Worldtalk bridges gap

CONTINUED FROM PAGE 63

more bulletproof, NetTalk will include Secure Messenger, desktop encryption software that plugs in to browsers as well as mail clients and supports Secure Multipurpose Internet Mail Extensions.

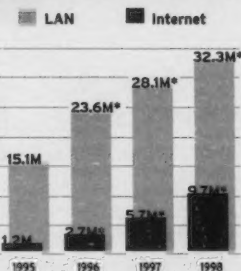
"NetTalk will let us use standards-

based messaging software in some departments but still let the power users have access to Notes and Exchange," said Jack Evans, network services manager at Perot Systems Corp.'s financial services division in Dallas.

Both Netscape Communications Corp. and Software.com, Inc. plan to offer similar messaging and directory bundles, but those offerings aren't expected to include built-in hooks to legacy mail systems.

Most corporations send E-mail and attachments between LAN-based E-mail systems and the Internet. But a growing group of users are looking to send more confidential documents, such as purchase orders and invoices, via E-mail.

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A prestigious panel of industry luminaries, consultants, publication executives, and technology columnists served as judges. Bob Metcalfe, founder of 3Com and currently VP of Technology with IDG, was "lead judge." Evaluation criteria included technical innovation, user-friendliness, security features, platform flexibility, visual impact, cost-effectiveness, and productivity improvement impact.

Winners of "Best of Class" awards of The Internet Open:

Solution Category	Company	Location	Sponsor
Banking and Investment	eComLink	Houston, TX	
Financial and Administration (Co-winner)	Booz-Allen & Hamilton Inc.	New York, NY	Netscape
Retail	NetDynamics, Inc.	Menlo Park, CA	Deloitte & Touche
Manufacturing	Trident Data Systems	Los Angeles, CA	
Wholesale and Distribution	BHR Info.Nel	San Jose, CA	
Transportation and Travel	pcOrder.com	Austin, TX	CommerceNet
Energy and Utilities	FedEx	Memphis, TN	
Voice and Telecom	TradeWave Corporation	Austin, TX	
Government and Public Admin.	Spanlink Communications	Minneapolis, MN	CommerceNet
Printing and Publishing	Social Security Administration	Baltimore, MD	CommerceNet
Marketing and Merchandising	Sagqara Systems	Sunnyvale, CA	
Education and Training	PictureTalk, Inc.	Pleasanton, CA	CommerceNet
Networking	Marshall Industries	El Monte, CA	
Internetworking	PictureTalk, Inc.	Pleasanton, CA	
Network Management	NetDynamics, Inc.	Menlo Park, CA	Gradient Tech.
Database Systems	Check Point Software Tech.	Redwood City, CA	Oracle
Human Resources	Level5	Melbourne, FL	
	Austin-Hayne	San Mateo, CA	Netscape

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Left to right, Bob Metcalfe, IDG; Rupan Shah, Netscape; Doug Jackson, Austin-Hayne; and Gary Beach, Computerworld

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Gary Beach, President and CEO of Computerworld and Bob Metcalfe presided over The Internet Open awards ceremony. Mr. Beach noted, "...each participant distinguished their organization with their commitment to the advancement of end-user and customer productivity, service, and responsiveness being made commercially available via the Web." He added, "You are all winners through the initiative you have taken in this program - a first of its kind in Internet commerce events."

Applications are being accepted for the 1997 programs of The Internet Open in Atlanta, April 9-11 and Los Angeles, September 9-11. Information on ICE is available via a World Wide Web site <http://www.idg.com/ice> or by calling The Internet Open HOT-LINES at 508-820-8612/8603.

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S H O R T

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NETWORK MANAGEMENT

Cabletron to buy Oasys

By Patrick Dryden

CABLETRON SYSTEMS, INC. last week announced plans to expand support for telecommunications service providers by acquiring Oasys Group, Inc. for an estimated \$10 million.

The agreement calls for an exchange of 240,000 shares of Cabletron stock for all outstanding shares of Los Gatos, Calif.-based Oasys, pending approval by Oasys shareholders.

Oasys supplies software to manage the Synchronous Optical Network (Sonet) devices that provide high-speed backbone connections.

Cabletron intends to integrate the Oasys TL1/CMIP Gateway with Spectrum, Cabletron's enterprise network management platform. As a result, service providers can replace separate tools for managing Sonet backbones, internet-working devices and computer systems with one Spectrum platform.

The worldwide market for telecommunications management software and services could exceed \$8 billion next year, according to projections by Meta Group, Inc. in Westport, Conn.

To better serve that market, Cabletron, in Rochester, N.H., recently introduced Asynchronous Transfer Mode switches for carriers and acquired vendors supplying support for frame-relay connections and remote access via Integrated Services Digital Network.

Small office internetworking

CONTINUED FROM PAGE 63

fice routers and Integrated Services Digital Network access devices to stackable hubs and small-model switches.

"The applications that corporations want to extend to small and home offices are dictating more bandwidth," said Jim Hutchinson, network manager at Children's Hospital in Boston. "I expect to see the carriers placing much more emphasis in developing and offering enhanced services to these sites [as well], which will grow the overall market."

Analysts say it will take a while for vendors to catch on.

"This is a whole new way of doing business for most of these companies, which will find they need expansive and

effective distribution channels, as well as the latest manufacturing system technologies to keep price down in this low-margin commodity business," said Eric Hindin, an analyst at The Yankee Group, a consulting and research firm in Boston.

MARKET RUSH

Vendors are rushing in because they see a big market now.

"They've sold to the Fortune 500 and are now

pursuing the Unfortunate 5,000, so to speak," said Hindin. "This market is potentially more lucrative than the high-end switching market, especially when you envision every home having at least Internet access. The sky's the limit."

Lopez says vendors with the right strategy will be able to succeed.

"If a vendor captures a remote site or sites of a user company that hasn't already made a long-term commitment to higher-end equipment, they've got their foot in the door," Lopez said. "That vendor may end up winning the firm's entire enterprise business. That's a perfect strategy."

3Com, Cisco, Bay Networks and Cabletron have turned their attention in part from high-end to low-end networking.

Ascend pitches Digital Subscriber Line links

CONTINUED FROM PAGE 63

were designed for branch offices connecting to a corporate network or the Internet.

An eight-port DSL card that delivers 128K bit/sec. speeds on copper lines is available now.

Because many carriers and Internet providers have already standardized on Ascend's remote-access switches, the new product line could make DSL a near-term option for telecommuters and remote-office users who need to access networks faster than with traditional modems, analysts said.

"Ascend has ruled the Internet roost for so long, and now they get to do it with ADSL [Asymmetric Digital Subscriber Line] as well," said Kieran Taylor, an analyst at TeleChoice, Inc., a consultancy in Verona, N.J.

At least one large carrier is testing its technology, according to Ascend officials.

"I'm interested to see what the phone companies come up with and how soon," said Cecil Stump, service technologies manager at Picker International, a medical image equipment manufacturer in Mayfield Village, Ohio. The company has

800 domestic users who dial in to the company's network via Ascend's Max 4002 switch.

"I'd like to give our users in the field the ability to connect with the [Internet service provider] faster so they'll be able to send data faster," Stump said.

"Hopefully, in the future, if this be-

"Ascend has ruled the Internet roost for so long, and now they get to do it with ADSL [Asymmetric Digital Subscriber Line] as well."

- Kieran Taylor, analyst, TeleChoice

comes a more popular technology, we'll use it," he said.

But Michael Hullhorst, senior systems architect at Applied Cybernetics, a systems security consultancy in Columbus,

Ohio, that uses Ascend switches, questioned whether DSL is the best solution for remote business needs.

"The businesses I work with are moving to ISDN — most find it more cost-effective," Hullhorst said. "I really see DSL as more of a consumer approach." Nevertheless, Hullhorst said he will investigate the cost and constraints of DSL technology, along with other options, such as cable modems.

SPEEDIER CONNECTIONS

Ascend's MultiDSL platform could eventually enable users on an Internet Protocol, Asynchronous Transfer Mode (ATM) or frame-relay network to connect at speeds of up to 6M bit/sec. to carriers and Internet providers that support DSL.

By the beginning of next year, Ascend plans to support on a single platform a host of other high-speed transports, including Single-line DSL, which offers 768K bit/sec., and two types of ADSL, Carrierless Amplitude-modulation (CAM) and Discrete MultiTone (DMT). ADSL offers data rates of up to 6K bit/sec. downstream and 640M bit/sec. upstream.

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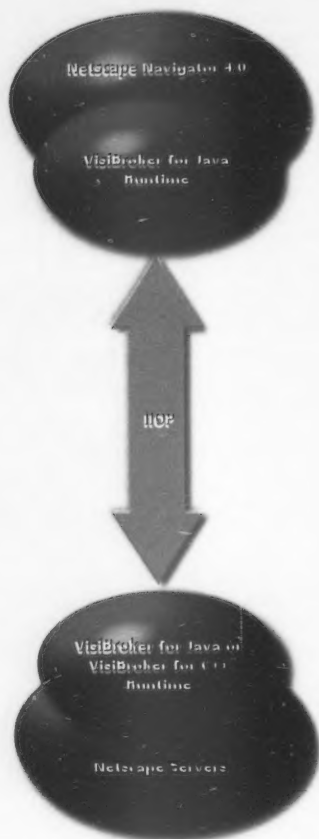
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— Netscape Communications
July 30, 1996

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OS/2 Warp

CONTINUED FROM PAGE 63

OS/2 Warp, said IBM's strategy is to promote OS/2 Warp installation among large corporate accounts.

Acknowledging that customers "will find it tough" to get OS/2 Warp preloaded, Albee said IBM is "working to resolve the issue with Compaq, Dell and HP."

Large accounts are generally unaffected by third-party vendors' decision not to preload OS/2 Warp, Albee said. Fortune 1,000 organizations typically have a standard configuration on a disk image and clone it onto the hardware, he said.

That's what Dan McCrary, manager of dealer and field systems at Mazda Motor of America, Inc. in Irvine, Calif., does.

McCrary said the major PC vendors are ignoring or refusing to preload OS/2 Warp mainly for economic reasons. "There are major costs related to the support of preloaded operating systems, and many hardware manufacturers don't want to assume the burden," he said. "Those that do have already been snatched up by Microsoft."

Some OS/2 Warp users placed the lion's share of the blame on IBM arch-rival Microsoft.

"Let's face it, Microsoft has a strange-

Falling through the cracks

As if users don't have a hard enough time getting PC manufacturers to preload OS/2 Warp, in at least one case IBM itself failed to preload OS/2 Warp on one of its systems.

"I can't even get an IBM ThinkPad 760ED with OS/2 Warp 4 preloaded, despite the fact that I had specifically ordered it," complained Bill Teags, IS manager at Advanced Package Engineering Corp. in Phoenix. Teags said when his system came, Windows 95 was preloaded on it.

To add insult to injury, when Teags called IBM technical support to ask for the OS/2 Warp 4 drivers he needed to do the installation himself, he got no assistance.

"It was both pathetic and irritating. I love the OS/2 Warp platform and loathe the lack of support we get from IBM," Teags said. The actual installation wasn't a problem because Teags is an experienced OS/2 network administrator, but he said he was irked "that IBM technical support refused to send the drivers, forcing me to search for them on the Internet."

John Albee, IBM's program manager for OS/2, said Teags' experience is the exception and not the rule. "I will personally investigate why customers are having problems getting IBM technical support to send out OS/2 Warp drivers. We will rectify the situation," he said.

Meanwhile, Albee said, there is a device driver CD-ROM that lets users link to a World Wide Web site to obtain the latest patches. Additionally, OS/2 Warp customers can obtain patches for IBM PC hardware at www.pcco.ibm.com. — Laura DiDio

hold on the hardware vendors. They own 85% to 90% of the desktops, so clearly they have more clout to get Windows preloaded than IBM does with OS/2 Warp," said an information systems manager at a large Southern insurance company who requested anonymity.

The dearth of machines preloaded

with OS/2 Warp does have a silver lining for McCrary. "If IBM chooses not to market what I consider the best operating system in existence, that's fine with me. Let's keep a good thing a secret. That way, IBM will have more time to give us continued excellent service and support," he said.

German firm offers Novell-based connections

By Kristi Essick

SAN FRANCISCO

Deutsche Telekom AG recently announced it will be the third major carrier to offer remote access and branch-office connectivity services based on Novell Connect Services (NCS) from Novell, Inc.

DT said that market trials involving "several major German companies" will begin this month, but it didn't release any names. Commercial availability of the service is expected during the first

quarter of next year.

Initially, the IntraLink service will provide DT's business users with remote access to branch offices and corporate sites as well as network-to-network connectivity to create virtual private LANs.

These services will be based on NCS, which enable customers to build networks that link business sites, remote users, corporate intranets and the Internet. NCS uses the NetWare network operating system and Novell Directory Services to connect and manage hetero-

geneous networks.

AT&T Corp. and Japan's Nippon Telephone & Telegraph Corp. (NTT) are already providing customers with Novell's services through the AT&T WorldNet Intranet Connect Service and the NTT Network Connect Services, Novell officials said. However, DT represents Novell's first large-scale foray into European telecommunications, officials said.

Essick writes for the IDG News Service's San Francisco bureau.

CLIENT/SERVER MESSAGING START-UP COSTS



- Client
- Server
- Nonrecurring engineering costs
- Backbone
- Training

Source: Rapport Communications, Inc., Atlanta

NEW PRODUCTS

SUN MICROSYSTEMS, INC. has announced Sun Developer Support Services for Java. The services are for developers working in the write-once, read-anywhere Java network application environment.

According to the Mountain View, Calif., company, the support services are delivered online or through live telephone queries. A one-year subscription costs \$695.

Sun Microsystems
(415) 960-1300
www.sun.com

BEST POWER has announced a new generation of the Best Power Fortress family of uninterruptible power systems for network computing settings.

According to the General Signal Corp. division in Necedah, Wis., the 520VA and

720VA models include PowerSteady voltage regulation, hot-swap battery capabilities and plug-and-play compatibility with Windows 95. Pricing for the new models starts at \$509.

Best Power
(608) 565-7200
www.bestpower.com

KASPIA SYSTEMS, INC. has announced the Kaspia Monitoring System, software for network monitoring.

According to the Beaverton, Ore., company, the system automatically polls priority areas and gives network managers a road map of problem areas. Pricing for the system starts at \$15,000.

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PURELY BUSINESS, OF COURSE

A study by Nielsen Media Research, Inc. in New York found that employees at IBM, Apple and AT&T together visited *Penthouse* magazine's Web site 12,823 times in one month this year.

Briefs

Ultimate webmaster

The Internet Society seeks a full-time webmaster to work at its Reston, Va., headquarters. The position isn't for the clueless, however. The society is looking for someone who knows Unix, graphics creation, graphics manipulation, hypertext authoring, World Wide Web site maintenance and application development, database technology and one or more foreign languages. Send electronic-mail responses to editor@isoc.org.

Switchboard signboard

Internet cruisers who use Westboro, Mass.-based Banyan Systems, Inc.'s Switchboard Internet directory soon will be wading through ads. Banyan's Coordinate.com Division is transforming Switchboard into an Internet-based Yellow Pages-like directory, complete with display advertising for companies listed. Switchboard, which contains the names of millions of individuals culled from nationwide databases of telephone information, has been popular with individuals trying to track down long-lost chums and the like. But the directory also has more than 11 million business listings.

Tracking problems

UniPress Software, Inc. in Edison, N.J., recently announced FootPrints, a World Wide Web-based help desk package that tracks user problems, change requests and bug reports. Pricing for FootPrints, which runs on Unix and Windows NT, starts at \$1,995 for three users. Licenses for extra users cost \$495 each.

Hoax viruses pose threat

By Gary H. Anthes

HOAXES AND FALSE virus warnings on the Internet are considered harmless by some, but they can cause damage by sapping computer resources and wasting users' time spent reading and responding to the warnings.

That is the finding of the Computer Incident Advisory Capability (CIAC) team at Lawrence Livermore National Laboratory in Livermore, Calif.

"We find that we are spending much more time debunking hoaxes than handling real virus incidents," said a recent advisory by the U.S. Department of

FOR MORE VIRUS AND HOAX INFORMATION

ciac.llnl.gov

CIAC notices, antivirus software and other information from the Computer Incident Advisory Capability's computer security archive

www.kumite.com/myths

Computer Virus Myths home page has descriptions of several hoaxes

ciac.llnl.gov/ciac/notes/Notes10.shtml

Information about the PKZ300 Trojan program

ciac.llnl.gov/ciac/notes/Notes09.shtml

Information about the Good Times virus

Energy's computer incident response team. William Orvis, a CIAC team member, said the response center gets 10 to 15 telephone calls and electronic-mail messages per day from users

who are needlessly worried about hoaxes. Ted Combs, manager of computer security at AlliedSignal Aerospace Co. in Kansas City, Mo., said he is see-

Virus, page 73

Monitoring employee access to Web

► Managers take many routes to curb users

By Justin Hibbard

MONITORING AND filtering users' access to the World Wide Web is becoming a common practice in corporations.

But information systems managers are still experimenting with ways to implement regulations without prompting user rebellion.

SECRET AGENT

For instance, the IS department at Reno Air, Inc. in Reno, Nev., secretly used server-based filtering software from NetPartners Internet Solutions, Inc. in San



Asics' Mark Allen says he lets department managers decide what is abusive.

Diego to track employees' use of the Web for one month.

The WebSense software generates reports that show which uniform resource locators users access and for how long.

This allows the IS staff to determine how much abuse is

really going on.

"It was an eye-opener," said Randy Reigel, a systems engineer at the airline. "It wasn't so much the time people were spending on the 'net, it was some of the places they were going."

Out of about 250 users, only two or three seriously abused their on-line privileges, Reigel said.

The IS department secretly configured the abusers' browsers to access the Internet only through WebSense. Now when the users request a forbidden site, Web-

Monitoring, page 73

Encryption policies still under fire

By Gary H. Anthes

WASHINGTON

FRIENDS AND FOES of the Clinton administration's encryption policies faced off again on Capitol Hill late last month. But users who are looking for signs of relief from export re-

strictions were disappointed.

At issue was the administration's controversial position that products with strong encryption may not be exported unless they include a "key-recovery" feature that would let U.S. intelligence and law enforcement agencies decode intercepted messages.

DOUBLE WHAMMY

These export restrictions prevent users overseas from buying the best U.S. encryption products. They also present interoperability problems for U.S. companies that communicate with branches in other countries.

The administration is reviewing with industry representatives the detailed regulations of its latest encryption export policy, which was announced in a broad outline in October, said William Reinsch. Reinsch is undersecretary for export administration at the U.S. Department of Commerce. The regulations take effect Jan. 1.

But the regulations haven't been well-received so far.

Robert Holleyman, president of the Business Software Alliance (BSA) in Washington, last week sent a letter to Vice Presi-

Encryption, page 74

http:

By Mitch Wagner

Keeping up with the news isn't just a civic duty. For many who work in national or international companies, it's their job to know about events in far-flung regions that can affect their business.

CABLE NEWS NETWORK

♦ www.cnn.com

CNN has comprehensive global reporting in a simple, easy-to-scan format. The well-designed front page has headlines and photos for more than 20 news and feature stories. With sparing use of graphics, it downloads fairly quickly.

MSNBC

♦ www.msnbc.com

CNN's upstart competitor MSNBC also has a news site that got off to a fast start, covering the crash of TWA Flight 800. Reactions to its initial coverage were mixed, but its reporting has become more steady.

THE NEW YORK TIMES AND WALL STREET JOURNAL

♦ www.nytimes.com
♦ www.wsj.com

Unlike the CNN and MSNBC sites, which are updated continuously, *The Times* site is updated twice daily. The *Journal's* service is subscription-based.

The Web also hosts hundreds of local newspapers around the world, from North America to Australia. Check a search engine for one that interests you.

COMPUTERWORLD

♦ www.computerworld.com

For computer industry news, you'll get everything you need from the *Computerworld* site, of course. But on the off-chance there's some morsel of industry news that we missed, most of the trade press have their own home pages with news feeds. Check a search engine for your favorite — ahem, second-favorite — rag.

Quad ready
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12 integrated sensors constantly monitor vital aspects of processor operation



Out of spec readings trigger Central Processor Recovery procedures.



ActiveCPR warns network users of impending shutdown and initiates safe auto-shutdown of OS then takes suspicious processor off-line and then automatically reboots OS, recovering normal network operation



Server watchdog automatically reboots OS in the event of a software crash

When server availability is at a premium, you need the experience of an industry leader on your side. And that's why you need the Revolution Quad6 by ALR. With over ten years of experience engineering high-end servers, ALR has captured practically every major industry server award. Awards like *PC/Computing's* "Most Valuable Product", *InfoWorld's* "Hot Pick", and *UnixReview's* "Outstanding Product of the Year" for two years running.

And now, ALR and the Revolution Quad6 take you to the next level of server availability with ActiveCPR.

What's ActiveCPR? Simply put, ActiveCPR (Central Processor Recovery) is an advanced auto-recovery system engineered to protect your network from both processor failures and software crashes. Combined with ALR InforManager's 36 integrated early warning sensors, this technology makes unexpected downtime practically a thing of the past!

Best of all, you can get these high availability features, plus the Revolution Quad6's award-winning performance and massive expandability, all for up to three thousand dollars less than a competitive Compaq® ProLiant 5000.™¹

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Virus hoaxes are spreading

CONTINUED FROM PAGE 71

ing many more warnings about nonexistent dangers. The warnings often include instructions to pass them on to others. "These things are like a chain letter," he said. "They amount to a denial-of-service attack."

"These spoofs are a significant problem because they involve a huge amount of lost time," Orvis said. Messages about the nonexistent but widely feared Good Times virus are the worst, he said. "It goes away for a while, then a huge wave of warnings hits the 'net,'" he said.

Warnings about other false viruses come in waves that last two to three weeks at a time, Combs said. He said it is

company policy at AlliedSignal for users to clear all warnings of security threats through a central help desk, which can quickly separate the hoaxes from real threats.

REPORT FINDINGS

The CIAC report at ciac.llnl.gov/ warned of the following digital impostors:

- Warnings about the Good Times virus have been circulating for years. There is no such virus.

- The Deeyenda virus is another hoax, and it isn't true that the Federal Communications Commission issued a warning about it.

- The PKZ300 Trojan horse hasn't been seen for more than a year, but warnings persist. A Trojan horse is malicious software that masquerades as something useful.

- The Irina virus warnings are a hoax that was created by an electronic publishing company. The hoax was designed to generate publicity for an interactive book of the same name.

- The Ghost.exe program isn't a Trojan horse that will destroy your hard drive, as warnings suggest. It is a harmless screen saver that does cute tricks on Friday the 13th.

Real warnings from the incident response teams and antivirus vendors have valid return addresses and are usually signed with the organization's Pretty Good Privacy encryption key, CIAC officials said.

Monitoring employee Web access

CONTINUED FROM PAGE 71

Sense redirects them to Reno Air's home page.

A more straightforward approach succeeded at Asics Tiger Corp. in Fountain Valley, Calif.

Managers at the athletic clothing company weren't concerned so much about the content users were downloading as they were about the productivity lost during hours spent Web surfing.

As an experiment, the IS department opted not to block access. Instead, it told employees their Internet use would be monitored by WebSense.

AUTONOMY

"I didn't think it was right for MIS to decide for the entire company what should be blocked and shouldn't be blocked," said Mark Allen, operations manager of the IS department at Asics.

"We kind of leave it up to the depart-

ment manager or director to decide what's abusive and what's not," he said.

After reviewing access reports for three weeks, managers found only minimal abuse. So the company decided to keep the experimental policy in place.

The reports so far haven't shown a significant rise in abuse, Allen said.

"Relationships between end users and IS departments are already at the breaking point... So this is just another reason to hate your IS department."
—David Strom, consultant

The IS department at AVL Scientific Corp. in Roswell, Ga., advertised its policy in a more subtle fashion.

The department told only a few users it would track employees' use of the Web with a beta version of WebTrack for Windows NT from Webster Network Strategies,

Inc. in Naples, Fla.

"We let a few people know to spread the word," said Dax Sharpe, a network specialist at AVL Scientific. "But we haven't made an official announcement."

The department monitored a random sample of users but didn't tell employees who was under scrutiny.

Instead, the department let users know by word-of-mouth that any Web use may be recorded.

"It's not really fair just to do it on the surprise, so we let a few people know," Sharpe said. "The general response we've gotten back is it's not an invasion of privacy. They're just impartial to it."

STAY NEUTRAL

Impartiality is about the best response an IS department can hope for when it blocks Internet access, said David Strom, president of David Strom, Inc., a consultancy in Port Washington, N.Y.

"Relationships between end users and IS departments are already at the breaking point," Strom said. "So this is just another reason to hate your IS department."

But that doesn't mean IS managers can't take measures to reduce the ill will, he said. "You should definitely be up front with people and tell them if you're blocking and monitoring," he said. "It's a bad corporate policy to root around in the basement."

SHORTS

Domino tool

Ives Development, Inc. in Cambridge, Mass., this month will ship a software development tool for Lotus Development Corp.'s Domino World Wide Web and Notes server that adds check-in/check-out capabilities to the Domino development environment. TeamStudio Clio lets teams of developers work in parallel on the same Domino application. Pricing for the tool is \$495 per Notes developer.

Intranet support

Baranof Software, Inc. in Watertown, Mass., has enhanced the reporting capabilities of its electronic-mail, modem

and intranet server management tools. The enhancements in the company's MailCheck, ModemCheck and IPCheck products include a selection of new graphical charts, the ability to automatically schedule reports and support for Hypertext Markup Language reports.

New benchmark

Oracle Corp., Portal Information Network, Inc. and Sun Microsystems, Inc. announced the Internet Transaction Mix (ITM) benchmark at the recent Oracle OpenWorld conference in San Francisco. The vendors claim ITM is a way to measure real-world scalability for Internet and intranet services. The ITM benchmark measures Internet users' ac-

tivities, including log-in sessions, electronic-mail retrieval and registration of new accounts. It was designed to assure customers that hardware and database systems for Internet and intranet services will scale to accommodate millions of users.

Client/server on Web

OneWave, Inc. and Ernst & Young are teaming up to integrate client/server business applications with intranets and the Internet. OneWave in Watertown, Mass., supplies World Wide Web-enabling software products. Ernst & Young in New York City implements client/server software systems and sells other professional services.

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Encryption policies take heat

CONTINUED FROM PAGE 71

dent Al Gore that said, "We seriously doubt the [new export] regulations will work, meet computer user demands or be accepted by the private sector."

A spokeswoman for the BSA said the regulations are being shown to industry groups under strict nondisclosure agreements.



Phil Zimmerman:

"Distrust of government has never been greater."

"We have no illusion that our policy will be 100% effective," Reinsch said at the November hearing. "Will terrorists use key-recovery systems? Not necessarily. Anyone determined to make information unavailable to [the U.S.] government can probably do it."

That, observers said, is the Achilles' heel of the White House encryption policy. But

Reinsch said terrorists and criminals will have to use key-recovery systems if they become pervasive and institutionalized in international commerce.

"We want a world in which key-recovery products are the rule, not the exception," he said.

But Phil Zimmerman, inventor of the widely used Pretty Good Privacy encryption technology, cited users' right to privacy and the government's alleged record of wiretapping abuse.

"The public is not going to accept key recovery," he said. "Distrust of government has never been greater."

Cryptography expert Dorothy Denning, a computer science professor at Georgetown University in Washington, called on the government and industry to adopt key-recovery technology.

She said organizations need the technology to protect themselves against dishonest employees.

"Even large criminal enterprises will use key recovery to protect themselves from their own people," she said.

But government has an obligation to protect its citizens from any security and privacy violations that might result from key-recovery abuse, Denning said.

Critics say export controls on encryption products are meaningless because strong encryption without key recovery is becoming available from foreign sources.

"When you can go down to Kmart and buy made-in-Taiwan versions of what we cannot export, export controls will fall," said Dan Geer, an engineering director at Open Market, Inc. in Cambridge, Mass.

HANDS-OFF POLICY

In a written statement dated Oct. 1, Gore said the administration recognizes the problems software vendors have living up to White House policy.

"The administration ... recognizes that an industry-led technology will expedite market acceptance of key-recovery, and the ultimate solution must be market-driven," he wrote.

But critics said as long as users are constrained by the key-recovery mandate, the market can't lead.

"There has been no compromise on the key-recovery mandate," said John Linn, a principal architect at OpenVision Technologies, Inc. in Pleasanton, Calif. "But there are degrees of freedom for industry to decide how that will be accomplished."

*When the weather outside is frightful,
online shopping can be delightful.
But before you log on and go,
here are some tips you should know.*

The Federal Trade Commission offers these warnings to shoppers who visit electronic commerce sites:

- Use a secure Web browser, such as one that supports Secure Sockets Layer, to protect data you may send to retailers
- Get the company's refund policy before ordering
- Keep any passwords secret, and ignore requests for personal information such as your Social Security number.

For more advice, go to www.ftc.gov/opa/1996/tips96.htm

S H O R T S

GTE seeks to ease 'net transactions

GTE Corp. is testing CyberTrust, its method for transmitting and verifying credit-card information over the Internet by using digital certification for ensuring privacy and authenticating transactions. The CyberTrust system was designed to comply with the latest Secure Electronic Transaction (SET) specifications set forth by MasterCard International, Inc. and Visa International, Inc. for transmitting card information. The SET

protocols will establish a messaging system that consumers, merchants and financial institutions can use to verify the identity of other parties in an electronic transaction.

The Boeing Co. Intranet files

The Boeing Co. recently announced a new intranet-based, multimedia training catalog. The intranet uses Seattle-based ICat Corp.'s Electronic Commerce Suite to let users tap into descriptions of training programs.

www.microsoft.com/office/97/netvolu

British businesses try their hand at virtual reality

By Ron Condon

LONDON

VIRTUAL REALITY is beginning to help staffers at global cable manufacturer BICC PLC work together and see how their overseas counterparts operate.

Although a pilot project currently links only 60 people in two U.K. factory sites, the technology has proved itself and will be rolled out to the company's worldwide network of factories, said project manager David Leever.

BICC's system goes beyond

videoconferencing by giving individuals World Wide Web access to one another's working environment.

A person's Web page contains not only their portrait, but also a 360-degree panoramic view of their workplace and Hypertext Markup Language links to the people they regard as their nearest neighbors, such as local work colleagues or people based elsewhere whom they deal with on a regular basis.

The system also provides a virtual tour of each BICC factory, created from photographs

of the site, so remote employees can pay virtual visits from their PC browsers.

"We interviewed 100 people in seven countries to see what they wanted from collaborative working and what kinds of contact they would find acceptable," Leever said.

ACCURATE INFORMATION

The resulting system allows people to share knowledge more effectively, and through the device of "nearest neighbors," reflects the true information grapevine more accurately than a corporate organization chart,

Leever said.

The BICC project is one of several that have been funded partly by the U.K. government as part of a program to persuade British businesses to make better use of computers in collaborative work.

Eight projects figure in the Computer Supported Cooperative Work (CSCW) program, with a total value of \$20 million and the government contributing \$8.8 million.

The first project, called Virtuosi, deals with virtual reality and has produced two pilot systems, one focusing on manufacturing at BICC and another showing how the fashion industry could use virtual reality.

IN FASHION

The fashion pilot project has been led by Nottinghamshire County Council, which aims to encourage local cloth and clothing manufacturers to make more use of technology.

Under the fashion project, designers can discuss ideas with remote buyers in a virtual space, using a virtual fashion model to show off various designs.

Remote buyers wear a virtual reality headset and glove, which allows them to walk around the model to view the clothes from different angles. Buyers can also gain a more realistic view of

how the proposed design will look by issuing voice instructions to make the model raise her leg or arm or move around.

Virtuosi is the result of cooperation among several industrial partners: British Telecommunications Ltd., BICC, GPT Ltd.

Remote buyers wear a virtual reality headset and glove, which allows them to walk around the model to view the clothes from different angles.

and virtual reality specialist Division Ltd., plus academic partners from the universities of Manchester, Nottingham and Lancaster.

The Virtuosi project has cost \$4.6 million over three years, with the U.K. government supplying \$2.2 million.

"Virtual reality should no longer be seen as merely clever technology for the entertainment and games industry," said Garth Shephard, the CSCW program coordinator. "Its place in business is clear."

Condon writes for the IDG News Service's London bureau.

NEW PRODUCTS

TELEBYTE TECHNOLOGY, INC. has announced Model 9010 Web Route, an Internet access device that provides full-time connections to the Internet via frame relay or another wide-area networking service.



According to the Greenlawn, N.Y., company, Model 9010 Web Route configures itself automatically for frame-relay

network connection, without advance information from the frame-relay service provider.

The product costs \$995.

Telebyte Technology

(516) 423-3232

www.telebyteusa.com

PASSPORT CORP. has announced Passport IntRprise, which lets developers build applications that use Java front ends for Internet and intranet deployment.

The Paramus, N.J., company said Passport IntRprise supports transaction processes, a multitier architecture and fault tolerance for enterprises. If a

system fails, the IntRprise application can immediately return to prefailure status. One license costs \$8,995.

Passport

(201) 634-1100

www.passport4gl.com

WINNOV has announced Videum-Conf Pro, a desktop videoconferencing system for use on the Internet.

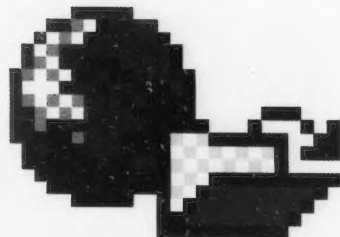
According to the Sunnyvale, Calif., company, the product includes an audio/video board, VideumCam color video camera and software. It costs \$499.

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Corporate Strategies

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A recent poll of 100 network managers at companies that provide Internet access found:

■ 64% give in-house users access to custom applications, but only 28% extend this capability to mobile and remote users.

■ 13% let customers access client/server applications.

■ 40% have established security policies to let in-house users access Java applets.

■ 87% said they need to provide sensitive company information via the Internet.

Source: International Data Corp., Framingham, Mass.

• Outsourcing skills assessment

U.S. Cellular calls HP for help

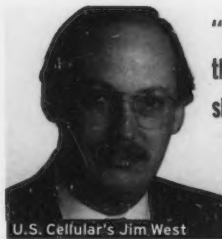
By Thomas Hoffman

LIKE MOST COMPANIES that plunge into client/server computing, U.S. Cellular Corp. wasn't sure what skills it needed and how to retrain its mainframe-oriented staff.

But unlike other firms that have struggled to assess their skills gaps internally, U.S. Cellular called in a consultancy.

In doing so, the Chicago-based cellular phone service joins a small but growing list of firms that are reaching outside for that help.

Companies such as U.S. Cellular are assessing their skills base to determine whether they need to recruit employees or retrain existing staff to manage technologies that are



U.S. Cellular's Jim West

"We didn't understand the [required] client/server skill set."

of a need for a systems software administration function" in client/server than in mainframe computing, he said.

EMERGING TREND

Skills assessment "is showing up with more frequency" as organizations move from mainframe to client/server computing and recognize the need to fill technical skills gaps that arise as a result, said Robert A. Zawacki, professor emeritus of management and global business at the University of Colorado in Colorado Springs.

Since its customer base grew tenfold in the past five years, U.S. Cellular needed a billing system that could support its more than 1 million clients and make it easier for marketing and other executives to analyze

customer information.

U.S. Cellular last year selected a suite of financial software applications from Israel-based Amdocs as part of a \$20 million client/server platform.

The company then tapped Hewlett-Packard Co. in Palo Alto, Calif., to help it with skills and retraining assessment.

HP "clearly had a good understanding of our target technical environment" — an HP 9000 Unix platform, West said. That experience helped, but it was really HP's ability to understand U.S. Cellular's business issues that led to the consulting contract, West said.

U.S. Cellular had looked at four or five other consultancies, including Electronic Data Systems Corp., before it selected HP, West said.

HP recommended that U.S. Cellular retrain its 140 legacy systems staff members to run the company's new systems. It also advised the company to implement this training in 1997 and 1998, when U.S. Cellular's new billing system will be phased in. This way, the staff will have a fresh understanding of the technologies as they are rolled out.

U.S. Cellular, page 78

Briefs

Service woes

Are you being served? Probably not as well as you should be, according to a survey by Forrester Research, Inc. in Cambridge, Mass. According to the poll results released recently by the consulting firm, 80% of 50 senior IS executives interviewed said they consider customer issues when making technology decisions. But half of those polled make no attempt to coordinate customer data across diverse systems. So different groups in a company — such as order processing and customer service — view the same customers differently. Forrester predicts a new type of packaged server application will emerge to solve the problem.

Fending off year 2000

Boston Mutual Life Insurance Co. has contracted Command Systems, Inc. in Farmington, Conn., to handle the insurer's year 2000 date-conversion work. Boston Mutual has about 3,000 programs and 5 million lines of code to be analyzed. The project is expected to take 19,000 hours of labor.

Monsanto takes SAP R/3 module for test-drive

By Randy Weston

THREE YEARS AGO, chemical manufacturer Monsanto Co. couldn't dream of turning its processing plants into make-to-order operations. But the company is closer to that goal after it launched a re-engineering effort that included tying plant floors to other business processes with client/server technology.

Bob Barrett, director of worldwide operations and finance at Monsanto, said the company's supply chain was linked only loosely to its business plan. "It was difficult for a global business manager to see what we had in inventory around the world on any given day. You couldn't commit to an order without three or four days of phoning and faxing plant floors," Barrett said.

So the St. Louis-based compa-

ny began a three-year migration from a mix of mainframe and other legacy systems to client/server technology — specifically SAP AG's R/3 Version 3.0, which includes human resources, financials and manufacturing applications.

Monsanto hopes the production planning software will let it do made-to-order business.

The R/3 manufacturing program included an untried module called production planning for the process industry (PPPI).

The PPPI module, which was designed to allow Monsanto to become more of a make-to-order company, was installed at Monsanto's largest and most critical plant, a fiber manufacturing site in Pensacola, Fla. The plant makes nylon and other fibers for carpet makers and similar industries. Barrett said the Pensacola plant was the environment in which the company wanted to test the system be-

Monsanto, page 78

INVESTMENT TECHNOLOGY TIPS

In *The Handbook of Investment Technology*, editors Kevin J. Merz and Joseph Rosen cite a checklist of key success factors in projects designed to yield a competitive advantage for investment firms. These factors include:

- Active senior management support
- Appreciation of IT's critical role
- A strong leader to champion the project
- Corporate culture that rewards teamwork
- IT staff that understands the business
- IT and business staffs that don't conflict
- Adequate up-front planning
- Synchronized business and IT strategies
- Avoiding investing in technology for only the latest "bells and whistles"
- End-user trainers knowing the business as well as IS
- Doing post-installation appraisals
- Knowing IT is a tool, not a substitute for human judgment

Source: *The Handbook of Investment Technology*, Irwin Professional Publishing, Chicago, 354 pages, \$70

Say it ain't so, Joe

CONTINUED FROM PAGE 3

Two weeks and a mere \$2,000 or so later, the vendor had all the information it needed to seal a \$500 million deal with the company. The buyers who spilled their guts in the interviews simply figured they didn't get the job.

"This is not far-fetched. This kind of thing is more common than you think, especially when you're talking about billions of dollars," says Orlando, a former high-tech sales executive turned tireless consumer advocate.

Orlando says he hasn't personally witnessed such scams. But during his career, Orlando has collected this and other war stories from sales teams that represent a variety of vendors.

By now, Orlando is hoarse from evangelizing. His listeners, for the most part, sit dumbfounded. This is pretty much the norm after one of Orlando's "buyer-beware" spiels.

"I'm always being told by buyers that they didn't know these things. To me, it's amazing that they don't know what they don't know," Orlando confides in a subsequent interview.

TRICKS OF THE TRADE

Orlando cites two other not-so-uncommon tricks. One is "Dumpster diving" — literally sorting through a customer's trash for tips that might help a vendor win a deal.

Vendors also have been known to offer users free preventive maintenance checks. During these service calls, a technician copies information on

users' C drives, then hands it to the vendor.

These plays "unfortunately show vendors in a bad light," but they nevertheless happen all the time, Orlando says.

After more than a decade on the vendor side — first as a worldwide marketing director at Digital Equipment Corp. and later as head of his own value-added reseller firm — Orlando now advises users how to steer clear of bad deals.

Orlando works out of his own consulting company in Lake Mary, Fla., and as a consultant at International Computer Negotiations, Inc. (ICN) in Winter Park, Fla.

"In a sales situation, it's a matter of trying to read a person. The more a customer talks, the more they tell you how to sell them," he says.

"If you get an arrogant type, you've got to be cocky and arrogant back. Arrogance tends to draw people in. They figure you can't keep making statements without there being something to them," he says.

Through the years, Orlando says, he got very good at reading people and selling. But he didn't like how manipulative

he had become and how callous he felt about his sales targets.

Orlando says he ultimately developed a dual persona.

Here he was a docile, quiet man at heart — someone who likes to spend his spare time with his three sons or landscaping his backyard.

Yet, he figures, lots of people could just as easily picture him "as an arrogant Ma-

fia type, having drinks on the back of a yacht somewhere."

Then about 18 months ago, ICN invited Orlando to address a group of IS buyers. He has worked exclusively on the buyers' side of the bargaining table ever since.

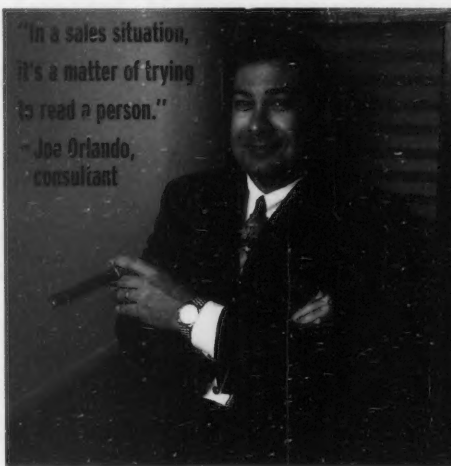
DISTINGUISHED LIST

Orlando's client list includes long-distance carrier Sprint Corp., drug giant Merck & Co. and mail-order retailer L. L. Bean, Inc.

"At first I had a hard time understanding what value he brought because he was very quiet and well-behaved," says one client, who is in the midst of negotiating a multibillion dollar outsourcing deal.

"But once we started to work through individual [contract] issues, I really got a sense not only of his [negotiation] skills, but his commitment," the client says.

"When our original contract expired with ICN, we renewed it, but we made it clear that we wanted Joe on the project for as long as possible," he says.



Monsanto

CONTINUED FROM PAGE 77

fore it was rolled out in other units.

With the new function, Monsanto hoped to better link the manufacturing plant to other parts of the business process and eventually save money by reducing inventory. The nature of the chemical processing business won't allow Monsanto to become a total make-to-order business, but Barrett said it is changing the way employees at the Florida plant view their jobs.

CONNECTION MADE

The application "allows us to link planned orders — whether forecasted or actual orders from our customers — to the shop floor. So we are making something for a customer rather than making it and then seeing who we can sell it to. Every order that comes down now has a customer," he said.

The module went live Oct. 1, but not without a lot of scrambling to fix a "stag-

gering amount of bugs we weren't expecting" and "killer long hours" to meet the deadline, Barrett said.

"When you implement SAP, especially PPPI, you are building recipes. You are configuring modules to model the recipes or process," Barrett said.

He said the bugs were mainly due to the immaturity of SAP's application link enabling (ALE) messaging technology, which allows its modules to be installed on different servers instead of one. But he said SAP wanted the PPPI module to succeed at Monsanto; the chemicals manufacturer is considered a showcase installation. As a result, SAP engineers from the U.S. and Germany also worked overtime to clean up the software.

SAP has traditionally responded to the needs of its showcase customers, observers said. The ALE middleware messaging technology was an attempt to answer demands by high-profile beta tester Chevron Corp. in San Ramon, Calif.

The PPPI module was developed because of the process manufacturers' demands for such functionality.

U.S. Cellular

CONTINUED FROM PAGE 77

West said U.S. Cellular expects to spend about \$1 million to retrain its information systems staff in the next two years.

That rollout approach made sense to Jodi Voy, an applications analyst at U.S. Cellular. "The concern was, 'Let's do the training at a point in time when you can

apply it,'" she said.

Voy will continue in her role as a member of the new billing system test team before she is trained to become an Oracle database administrator. That will happen after a user-acceptance test period in the second half of next year.

"People need to see that the company is concerned about their career growth and future," said Voy, an eight-year veteran of U.S. Cellular. "I'm real excited about it."

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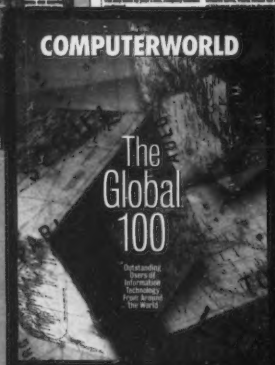
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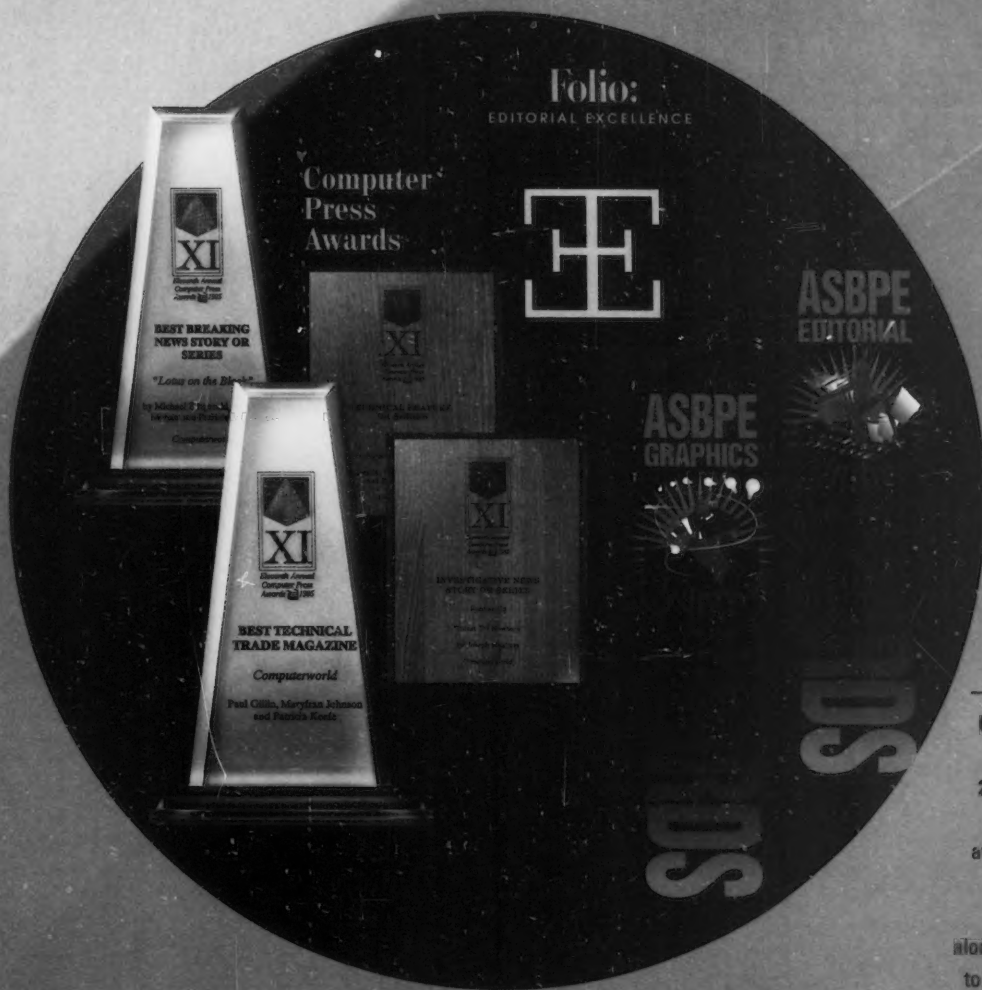
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Computer Press Awards June 19, 1996

Best Technical Trade Magazine

Computerworld 8/28 & 11/6/95

Best News Story

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"Lotus on the Block" 6/12/95

Runner Up

Best Investigative News Story

Computerworld "Ticket to

Nowhere" 12/11/95

Runner Up

Best Technical Feature

"The Computerworld

Guide to High-end Desktop PCs"

11/13/95

Folio's Magazine's Editorial Excellence July 11, 1996

Winner: Computing Trade

Publication Category

Computerworld 8/28/95

American Society of Business
Press Editors - Nationals
August 2, 1996

Editorial Category:

First Place: News Series

Computerworld "Win 95 Off

and Running" 2/95 - 8/95

Second Place: News Series

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Block" 6/12/95

Graphics Category:

First Place: Computer-
generated Infographic
Computerworld Client/Server
Journal's "Document
Management" 2/95

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Computerworld's In Depth Feature,
"Swamp Thing" 8/7/95

Second Place:

Front Cover, Non-photo

The Computerworld

Global 100 magazine 5/1/95

Second Place: Contents Page

Computerworld's Campus

Edition magazine. 10/31/95

Honorable Mention:

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July 23, 1996

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YEAR 2000

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Managing

THE ROAD TO

It's Dec. 9, 1996. Do you know where your year 2000 problems are?

If not, you had better get cracking. Most practitioners and consultants say if you aren't well into finding the problem code by now — let alone fixing it — then you aren't going to finish in time. That's because testing the converted systems can take as long or longer than the conversion itself.

Many applications also will fail before Jan. 1, 2000. Bruce Hall, a research director at Gartner Group, Inc., recommends finding the "time horizon to failure" for each application. A system that handles five-year loans, for instance, may have already stumbled on the difference between 1991 and 2001.

You'll also need time for testing and reintegration, and a buffer period in which you can swat the inevitable last-minute bugs.

There are only nine business quarters until Jan. 1, 1999, when smart companies should have completed conversion and testing. On the following pages are the major decisions you should be making now to prepare for the millennium and some suggestions on how to make those decisions.

The road to 1/1/00, page 84

→ IS professionals such as Texaco's Fred Friedrich have critical choices to make as they help guide their organizations down the path to the new millennium

By Robert L. Scher

1/1/00

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CONTINUED
FROM PAGE B3

MANAGING

1. HOW DO I GET THE MONEY?

Do you have the support of the CEO and the board?

YES

■ Explain in detail the business risks, including lost revenue, opportunity cost, loss of public image, corporate and personal liability.

■ Make sure management's support is public and consistent. The work is too risky, expensive and complex to complete otherwise.

■ If the company is public: Discuss the risk of shareholder lawsuits or a drop in stock price if unsolved year 2000 problems hurt earnings and share price.

NO

■ Hire a respected consultant to deliver the bad news.

■ Prove that competitors and well-run companies in your region also are spending for year 2000 fixes.

■ Quote trade press and industry gurus on the seriousness of the problem.

■ Show graphically which parts of the business will fail if the problem isn't fixed. Demonstrate the impact on revenue and profits.

■ Conduct one-on-one meetings; prepare examples of applications that failed because of year 2000 issues.

2. WHAT DO I FIX, JUNK OR REPLACE?

CONSIDER REPLACING THINGS IF:

■ Platform (hardware or software) costs are rising.

■ Maintenance costs are rising.

■ You understand the business needs and have the development skills to rewrite, test and deploy the system by the year 2000.

■ Business process re-engineering has created demand for new functionality, and conversion can be cost-justified as part of the new application.

■ Upgrade costs are steep for moving to year 2000-compliant versions

of vendor-supplied applications or operating systems.

■ The year 2000 fix can be achieved by speeding up an already-planned upgrade to new system.

CONSIDER JUNKING THE SYSTEM IF:

■ It doesn't meet current or near-term business needs.

■ Other systems exist that provide enough of the same functionality to fill the gap.

■ It's possible to consolidate the system with another one, even if it means giving up

some bells and whistles.

CONSIDER FIXING THINGS IF:

■ The application is critical to the business.

■ It is highly date-dependent (such as for loans processing or insurance applications).

■ The system is well-understood and well-documented, which will make the year 2000 fix easier.

■ The system has a long life expectancy and runs on platforms that you expect to continue supporting for a long time.

Backing for year 2000 work ideally should come from either the CEO or chief financial officer, says Lee Freeman, manager of the year 2000 practice at Management Support Technology, a consulting firm in Framingham, Mass. Otherwise, he warns, the work can fall victim to penny-pinching from business managers who have learned not to trust information systems' cost estimates.

All too often, the IS professionals who ask for year 2000 funds are "the same ones who have overcommitted, underperformed and [were] never on time" in the past or those who have submitted inflated IS budgets knowing they would be cut, Freeman says. That makes the business manager think "IS is telling me \$50 million; I know deep down it's \$35 million. As you go up the organization, everyone's throwing their own reality fudge factor into it," Freeman says.

Ascent Logic Corp. in San Jose, Calif., claims its Year2000Plus tool and methodology lets IS managers create a graphical - and frightening - picture of which parts of the business will fail because of year 2000 problems, and at what point. If the CEO demands a lower price tag, "We say 'Fine.' enter the new numbers, and the picture shows what other parts of the business will fail. Once they understand it's a business problem, then the money is forthcoming to fix it," says Larry McArthur, president and CEO of Ascent.

Freeman and many other year 2000 consultants recommend convening a task force or program office with enough high-level backing to break through political and funding problems. "This group has to be able to break the rules," he says, such as paying extraordinary incentives to attract hard-to-find programmers for year 2000 work. The year 2000 program manager should report "straight to the CEO," Hall says, so he can enforce tough decisions such as spending on the work even if it tank an operating unit's short-term financial results.

3. HOW DO I FIX IT?

DATE-FIELD EXPANSION. Consider expanding the date fields in the database from six to eight digits to accommodate four-digit years if:

■ The application has a long life expectancy.

■ The application is heavily date-dependent.

■ You have the time and money to expand the database.

■ You're dealing with relatively small amounts of data or dates that are spread out widely over time.

4. WHAT PARTS SHOULD I OUTSOURCE?

Sometimes, year 2000 assessments can spell good news. Consider the commercial insurance business at Kemper Corp. in Long Grove, Ill.

The company has already fixed a key system at one-third of the estimated cost, says year 2000 project manager Pam McFadden.

Apollo is an off-the-shelf package on which Kemper relies to support half its commercial lines of insurance business. It includes 40 million lines of code, 7,400 object modules and 40 databases. By using Challenge 2000 from Micro Focus, Inc. in Palo Alto, Calif., to analyze the code, "we were able to remove two-thirds of the programs" because they weren't being used, McFadden says.

That hadn't been done earlier because it didn't seem important, McFadden says. But it was done this time, because it helped cut the year 2000 work down to size, she says.

THE ROAD TO

LOGICAL WORK-AROUNDS. Consider continuing to store dates in the six-digit MM/DD/YY format, but adding application logic that can differentiate between the 1900s and 2000s if:

■ The system has a limited or uncertain life expectancy. (Logical work-arounds may pose long-term maintenance problems.)

■ The system isn't heavily date-dependent.

■ The system doesn't deal with many dates that span more than 100 years. (Some work-arounds have trouble with sorting years past that time.)

HYBRID APPROACH. Consider storing dates in a new format within the existing six digits — for example, as the number of years since 1800 — and using application logic to calculate the actual date if:

■ The system will be used for a long time and must span a wide range of dates.

■ Database expansion would take too much time or money.

■ You can easily find and isolate existing date-calculation logic and tweak it for year 2000 purposes.

Don't try to find a silver bullet for your year 2000 problems, analysts say. The correct fix will vary by the structure of your systems, how heavily they use dates, the way they use dates, the age of the application and the skill level of your IS organization.

Changing the database is the more complete answer, but it can be far more difficult and expensive to do. Logical work-arounds can be done faster, analysts say, but the procedural code that can be added to applications can drain performance and become a long-term maintenance nightmare. The hybrid approach can avoid the cost of database expansion, make long-term maintenance easier and handle a wide range of dates. But it's best used only when it's easy to isolate existing date-calculation logic and add the capability to calculate correct dates.

Even within the same company, different approaches are best for different applications. Associate IS specialist Fred Friedrich is using a hybrid approach he developed for the core financial applications at Texaco, Inc. in Houston. But for the core accounting applications at Texaco's exploration and production unit, Dennis Samoska, manager of applications, is piloting a year 2000 fix that employs the database expansion route.

One reason: Changing all the date calculations would have been harder in Samoska's collection of more than 100 different applications that "were all developed at different times, designed by different people over a range of 20 years," Samoska says. "Many of Fred's applications were built around... one system."

CONSIDER OUTSOURCING PROJECT MANAGEMENT IF:

■ Your in-house project managers have never proved themselves on a project this big, complex and critical.

■ At least one person in your organization has the clout, skill and experience to manage the project manager.

■ Someone in your firm remains accountable for the overall project.

CONSIDER OUTSOURCING THE CONVERSION ITSELF IF:

■ You've done a solid, complete inventory and analysis with results the vendor can easily understand.

■ You and the vendor have agreed on a compliance measure so both sides know what "completed" means.

Outsourcing the work has all the potential benefits and risks of any outsourcing deal. But the needs for good communication, coordination and conflict management are even more crucial because of the work's complexity and importance.

An outsourcer's "timetable may impact your timetable" for everything from routine overnight batch jobs to taking systems off-line for conversion and testing, says Richard Saulsgiver, a senior technical manager at Computer Management Consultants, Inc., a consulting firm in Tampa, Fla.

"The key is knowing the activities, knowing the schedule and holding them to the schedule." And that requires that one of your key managers be involved, he says.

Scheier is Computerworld's senior editor, management.

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For more year 2000 advice, log on to www.computerworld.com



YEAR 2000 SCOREBOARD

An occasional series on year 2000 trends, issues and statistics

MILLENNIUM PRICE WATCH

Gartner Group, Inc.'s latest estimate for the cost of fixing the year 2000 problem is \$1.10 per line of executable Cobol code. Gartner believes Cobol makes up 80% of the problem code. This assumes use of the "logic" method to fool the system into thinking dates have been changed in the database. The cost increases to \$1.65 per line of code if customers actually expand date fields.

These estimates include the cost of making people aware of the problem; finding, fixing and testing any affected code; and managing the project. The estimates don't include extra processing power or storage required for year 2000 conversion or testing.

The estimates have an accuracy margin of plus or minus 40% and should be used only for preliminary estimates, Gartner analysts warn. Actual costs depend on factors such as the complexity and age of affected applications and the skill level of the IS staff.

WHO YA GONNA BELIEVE?

How are companies progressing with their millennium conversions? You may get an idea from the results of four recent studies:

■ APPLIED COMPUTER RESEARCH, Phoenix

Field: 117 respondents, largely managers of software development.

The skinny: 68% say their companies have started to convert or are planning to convert systems.

■ INTERNATIONAL DATA CORP., Framingham, Mass.

Field: 503 top executives, including some year 2000 project managers.

The skinny: Nearly 75% of firms have begun or planned projects.

■ RHI CONSULTING, Menlo Park, Calif.

Field: More than 200 CIOs from companies with more than 100 employees.

The skinny: 35% said their firms would be affected by the date problem. Of those respondents, 47% said they have taken action on it; 47% haven't.

■ SOCIETY FOR INFORMATION MANAGEMENT WORKING GROUP

The field: 162 IS executives.

The skinny: About 67% indicate their firms have begun inventory and impact analysis.

REPAIR — AND RETURN ON INVESTMENT, TOO!

Spending to fix year 2000 problems is bad enough; not getting any return on your investment is worse. Matt Hotle, research director at Gartner Group, suggests a better way: Fix the problems, but at the same time improve either the applications or how you maintain them.

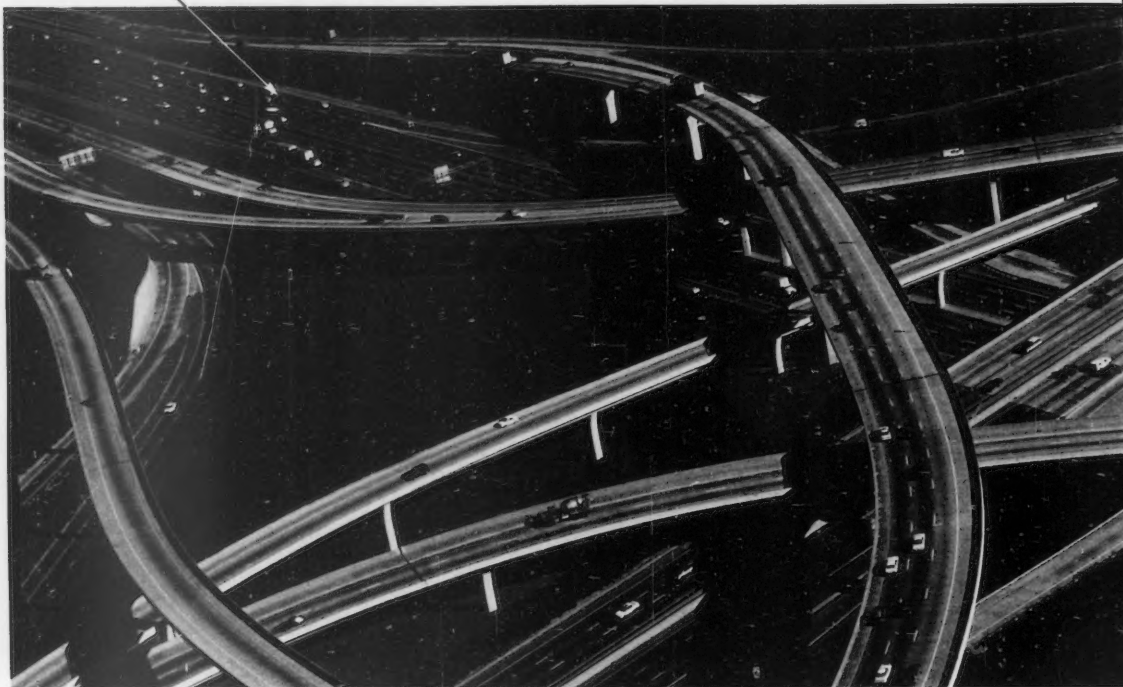
For example, Hotle says, the IS organization can survey users before starting year 2000 work to find functions that can be easily added to the system. Another method: Use your year 2000 inventory to help find and fix bugs in the system, reducing future maintenance work. Yet a third approach is to reuse the test procedures needed for year 2000 conversions in future projects.

Marv Overman at First Data Resources, a credit-card processor in Omaha, is confident he will see such benefits. Even before he started his year 2000 work, Overman had been using the RDD-100 systems engineering tool from Ascent Logic in San Jose, Calif., to create a detailed map of which First Data systems support different parts of its business. For each customer, RDD-100 records "exactly which reports they get, which screens they get, which transactions are associated with those, and which files we send them," says Overman, director of requirements management and verification.

He says this analysis makes it easier to find and fix year 2000 problems and will make it easier to make future changes to its systems. — Robert L. Scheier

1/1/00

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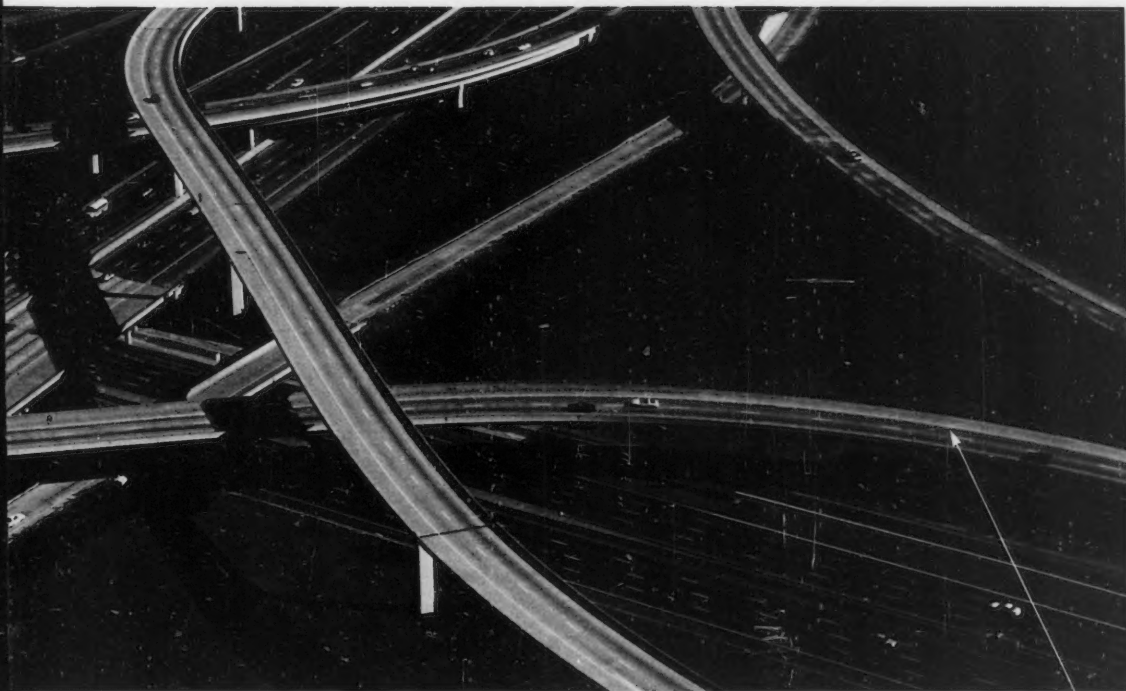
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Layoffs wreck morale and lower the quality of work. But IS executives can cut costs without layoffs, if they think in terms of processes and activities instead of departments and salaries. Tony and Jeremy Hope, authors of the new book *Transforming the Bottom Line: Managing Performance with the Real Numbers*, turn their sights on IS organizations, and show how IS managers can keep their staff when they're under pressure to reduce costs.

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- 90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply)

- Operating Systems
- (a) Solaris (e) Mac OS
- (b) Netware (f) Windows NT
- (c) OS/2 (g) Windows
- (d) Unix (h) NeXTStep
- App. Development Products ☐ Yes ☐ No
- Networking Products ☐ Yes ☐ No
- Intranet Products ☐ Yes ☐ No

4. Which of the following software products do you buy, specify, recommend or approve the purchase of? (Please check all that apply)

- (a) ☐ Internet software
- (b) ☐ Internet browsers
- (c) ☐ Web authoring/development tools

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PAUL STRASSMANN

SOFTWARE: SO BAD, IT CAN ONLY GET BETTER



Software easily rates among the most poorly constructed, unreliable and least maintainable technological artifacts ever invented — with the exception, perhaps, of Icarus' wings.

Nobody would tolerate telephones that crash every other day. Nobody would buy a house if taxes and upkeep were seven times the purchase price. But these are the analogies executives think of when IS developers explain why it's hard to implement an important new technology. No wonder executives become exasperated.

Still, there's always a champion who demands that IS develop a computer application. What the champions and their followers don't understand is that applications become increasingly difficult to service over time as endless upgrades and so-called maintenance replaces what was previously constructed at great expense.

Software doesn't physically wear out. It's supposed to improve with use as errors are discovered and corrected. Yet software tends to degenerate much faster than any computer equipment — or any consumer appliance — because of its inherently poor characteristics.

THE TROUBLE WITH SOFTWARE

Software becomes obsolete because programmers and vendors can't keep up with rapid change coming from many directions. The following are some of the sources of disturbance:

Increasing incompatibility: There's erosion of compatibility in the microprocessor architecture upon which all operating systems are constructed. As hardware moves from 8- to 64-bit processors, software must be adapted accordingly. As communication speeds quicken, the con-

cept of what must be processed centrally and what can be handled locally undergoes radical change. The layers upon layers on which applications rest aren't bedrock — they're continually shifting quicksand. It's no wonder that what rests on top is prone to sudden collapse.

Creeping featurism: The software market, with its rapidly changing cast of suppliers, is a rat race fueled by generous advertising allowances, conventions, magazines and clever vendor tactics that support only the latest version of a software package. Under such conditions, programmers have little incentive to create something of more than immediate use.

Vendor incentives: A well-established, dominant vendor has strong economic incentive to ship imperfect software. Frequent upgrades pre-empt competitors that may wish to ship a more reliable product. Besides, the dominant vendor then can charge for maintenance, support and upgrades that are more profitable than the original merchandise.

Unqualified programmers: Even though the market will in due course deliver more stable operating systems, it's unlikely that most programmers will have the incentives to program reliable applications unless management insists on and verifies them. Most business application programming is done by office workers whose competency has never been formally tested. Plumbers, beauticians and truck drivers are subject to tougher certification standards than these self-taught programmers. These

programmers work on unreasonably short deadlines, use mediocre testing and integration tools and report to ill-informed corporate bureaucrats who believe the advertising claims that writing significant applications is as easy as using a spreadsheet.

Short-term thinking: The year 2000 bug is only one example of the shortsightedness of what some claim is a professional occupation. A typical programmer makes hundreds of such myopic decisions. He just follows management's wishes for speedy completion and minimal expense. The only reason the year 2000 bug has attracted so much attention is that it's ubiquitous and has a definite deadline. Millions of other bugs are just as negligent, but they pop up randomly, one location at a time, and probably cost more than the \$300 billion cost of averting collapse in 37 months.

A SOFTWARE OPPORTUNITY

Erosion of compatibility, creeping featurism and unqualified programmers result in conditions that are wasteful and onerous. All that must be corrected in due course.

Competent managers will accept damage to their business only if the effects are insignificant or if a remedy is unavailable.

I'm confident that the current state of the software business won't be allowed to continue. The costs are significant and in many cases represent a considerably greater percentage of corporate profits than before.

Sooner or later, some vendor that seeks to gain an inordinate competitive advantage will start selling computer technologies that recognize the total costs of the customer's ownership instead of just the purchase price of what they sell.

The history of technology and competition shows us that quality, reliability and ease of use always prevail. In software's case, that's likely to happen soon.

There are just too many businesses that can't continue to waste money on shoddy programming solutions.

Strassmann can be reached at paul@strassmann.com. His World Wide Web address is www.strassmann.com

Efficiency or growth?

When it comes to making information technology decisions, cost-cutting wins out over growth among consumer goods manufacturers.

But there are indications that the in-

dustry's information systems managers are looking more at how to use IT to expand their companies, according to a new survey by Computer Sciences Corp. (CSC) in Waltham, Mass., and *Consumer Goods Manufacturer* magazine.

CSC surveyed IS managers at 203 companies.

Efficiency: 41% said their company's primary mission is to be the most efficient, lowest-cost company. Pressure to reduce overall supply-chain costs was the top issue, at 54%. The top IS strategies are related to that efficiency mission: integrating systems (60%) and re-engineering business processes (49%).

Growth: Helping customers define what they want and delivering it to them was the mission of 38% of respondents. Nearly half (49%) said the purpose of IT investments is to support anticipated growth.

OTHER FINDINGS

Not Web wackos: Only 33% said their companies maintain a site on the World Wide Web. Of those companies, just 5% said they use their sites for electronic commerce. Most use them as online brochures and to obtain customer feedback. But 20% of respondents said they have intranets in use.

Analysis fiends: Four of the top five IT application areas in the next 18 to 36 months are performance measurement, activity-based costing, product flow/logistics analysis and productivity analysis. (Field sales support was the fifth.)

Copies of the study can be obtained from CSC by calling (800) 272-0018.

WWW

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Buyer's Guide

PRODUCT REVIEW: Strong performance, low price give Intergraph's server an edge in midrange foray.
MY OPINION: Make an animated SPLASH on the Internet.

THE INTERGRAPH PUSH



Hardware vendors are racing to provide servers that can meet the demands of the converging open systems, client/server architecture and Windows NT markets. The competition has been fueled by the suspicion that a firm that captures the server niche today has the inside track for full enterprise standardization tomorrow.

The vendors' response typically has centered on two technologies: multiple CPUs and RAID storage systems. Intergraph Corp. in Huntsville, Ala., has stepped into this competition with the InterServe 660, a system that carries the "open" benefits of most NT servers and adds the balanced system performance generally found in traditional, proprietary midrange systems.

The design of the InterServe 660 lets it make full use of the Intel Corp. Pentium Pro processors that power the system rather than

The Intergraph push, page 93

The first in an occasional series of reviews of multiprocessor servers

BY CURTIS FRANKLIN JR.

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MY OPINION

Make an animated SPLASH

BY ROSS M. GREENBERG

I seem to have lost my productivity. I had it about a week or so ago. It was right here, sitting on my desk, only a mouse click away. Then I discovered the FutureWave (www.futurewave.com) FutureSplash Animator product.

I'm not sure if my productivity was lost instantly or if it escaped while I was preoccupied trying to create the perfect Web page with animation and wondrous graphics. It would have had plenty of time to escape. Even with a Kewl Tool such as Animator, the perfection I seek takes a damned long time to accomplish.

The best way to see what Animator has to offer is to look at Web pages that use it.

Internet Explorer comes with a pre-installed equivalent of a FutureSplash plug-in; there's a freebie plug-in available on the FutureWave home page and a cool little Java application that emulates the ActiveX control or the Navigator plug-in. Keep an eye on the Java "control." It is still in beta testing but stands a reasonable chance of being entirely platform-independent in the near future.

From FutureWave's home page, you

can click over to a list of other home pages that use Animator. Some are really interesting examples of what Animator can do. Others seem to be real yawns until examined closely; suddenly you'll wonder, "How'd they do that?"

Animator isn't close to perfection, but you can get an idea of what it can do and how everything looks like a nail when you're armed with a hammer.

Using such buttons can take a page from the ho-hum to the "wow" state for your end users.



You can sit at The Microsoft Network home page and watch the splash screen. There's a lot of stuff taking place on that page. It is done through Animator and is very impressive. I'm also going to tell you this wasn't an after-school project. There's a great deal of work apparent in that home page.

Someone who takes the time to discover the goodies this program has to offer can accomplish similar feats and more.

Animator cuts that work down by automating a good deal of the tedious stuff, but not down to zero. The first thing to realize is that animation is time-consuming. If you want your product's logo to do a slow fade-in and then a fade-out as it revolves around your company logo, you have your work cut out for you. I'm still working on doing that myself. I'm not a graphics pro and don't play one on TV, but I'm up to about 15 man-hours, so far, and counting. Gads, I love a challenge.

When you click onto a FutureSplash-enabled Web page, your browser will check to see if the appropriate plug-in or control exists and is enabled on your system. If not, the plug-in or ActiveX control gets downloaded automatically from the FutureWave home page. The animated "movie" (Animator parlance for the animated script, inclusive of animation content) is fed to the control, and some stunning results will appear.

You'll notice that graphics start to display as they are still being downloaded. FutureSplash has an advantage over the interlacing of partial graphics files you may be used to in that it makes good use of streaming. Long animation sequences will start playing almost immediately. You'll also note that the animation movies are concise, so total download time, even on complex pages, is reasonable.

Interactive buttons are the name of the game with FutureSplash-enabled pages: Each button can have different images for each change of state, from the initial button-up state to mouse-over and but-

ton-hit states, and each change can accomplish functions. Using such buttons can take a page from the ho-hum to the "wow" state for your end users.

FutureSplash uses vector graphics and outline fonts, so there are no jagged edges. And all objects are fully scalable, even allowing the user to zoom in without any loss of detail or quality. Try right-clicking on any of the animations you see on the FutureSplash-enabled pages, and you can play with the zooming feature.

TRY IT OUT

Animator comes with a few samples of Hypertext Markup Language pages you can paste into your own Web pages. They provide nice scripts so each page can determine what browser you're running and whether or not the required plug-in and/or ActiveX control is present and enabled.

Animator costs \$250, and you can download a 30-day evaluation copy from FutureWave's home page.

I was quite impressed with the product and will be making extensive use of it on my home page. You should, too. But take it easy — a little well-designed and classy animation can go a long way. A little too much and your home page will look like a comic strip.

Greenberg develops communications, security, antivirus and Internet software from the middle of the Catskills in New York on a farm called Virus Acres. He also hosts the Safe Computing Forum on The Microsoft Network. If your product is kewl, reach him at greenber@ramnet.com.

THE INTERGRAPH PUSH

CONTINUED FROM PAGE 91

suffer bottlenecks in either the storage or network subsystems. The InterServe 660 demonstrates performance at the high end of that shown by the four-way Pentium processor machines. It provides approximately 125,000 transactions per hour, compared with the 86,000 to 94,000 transactions per hour found in the first generation of quad Pentium Pro systems — running at 166 MHz — tested thus far by Client/Server Labs.

POWERFUL HARDWARE BUNDLE

The machine sent for evaluation was configured to compete with serious mid-range systems, such as RISC machines from Sun Microsystems, Inc., Hewlett-Packard Co. and IBM's RS/6000 division. Four 200-MHz Pentium Pro processors were at the heart of the configuration, supplied with 1G byte of main memory. One InterRAID Fast/Wide SCSI II RAID system was integrated into the main system unit, supplemented by three additional InterRAID systems, each driving eight 4G-byte Seagate Technology, Inc. Barracuda drives, for a total of 128G bytes of disk storage. The InterServe system was housed in a

standard 19-in. rolling rack, which included a Samsung Electronics America, Inc. 15-in. monitor. Power requirements were met by a rack-mounted uninterruptible power supply, and electrical stability was enhanced by hot-swappable redundant power supplies on main CPU and RAID modules. One negative comment: Because of the rack's 7-ft. height, the monitor and keyboard proved awkward for a lab technician who is 5 feet 4 inches tall.

We evaluated the InterServe running Microsoft Corp.'s Windows NT 3.51 and SQL Server 6.5. Network connectivity was provided through an Intel 100Base-T network interface card.

TWO-WAY TESTING

The InterServe was evaluated using two loads: a traditional transaction processing load based on a modified subset of the TPC-C benchmark and a decision-support load based on a highly modified subset of the 10G-byte TPC-D benchmark. The server was driven by a network of 40 Dell Computer Corp. Pentium-based transaction-processing workstations and eight Dell Pentium-based decision-support workstations. All workstations were connected via 3Com Corp. SuperStack II Switch 1000 10Base-T switches, which then connected to a 3Com SuperStack II Switch 3000 TX for 100Base-T connectivity to the server. With this evaluation configuration, the

InterServe processed online transaction processor transactions at a rate of 213,186 per hour and simultaneously served highly complex decision-support queries at a rate of nearly one per hour.

The most impressive aspect of the InterServe's performance was that the four CPUs showed utilization averaging more than 90%. In addition, they showed average utilization that didn't vary more than 5% among them.

The very high CPU utilization seen in the Intergraph system shows that the storage subsystem can move enough data to avoid being the chief performance constraint, a situation rarely seen in Intel-based systems. Network capability was also well-matched to the demands of

this particular load, allowing data to flow to and from the server at a rate dictated by the server's ability to perform rather than the network's ability to transfer data.

Intergraph places the street price for an InterServe 660 with 256M bytes of memory and three 9G-byte disk drives at \$49,500. An additional 768M bytes of memory costs \$11,400, and five additional 9G-byte drives cost \$14,200. The system as tested, including a \$900 15-in. rack-mounted monitor kit, costs \$76,000.

Franklin is director of Client/Server Labs (www.csinc.com) in Atlanta. Client/Server Labs is a test lab partner for Computerworld.

PRODUCT SUMMARY

The evaluations performed on the Intergraph machine show a system that makes full use of the processing ability of the 200-MHz Pentium Pro and of Windows NT's capability for scheduling tasks among multiple processors. System designers have been promising this type of performance since Windows NT's multiprocessor capability emerged. The InterServe 660 makes good on this promise.

Intergraph has a long history of providing solutions for engineering and architectural environments. With the availability of the InterServe 660, the company has a product that can provide high performance, high availability and Windows/Intel openness to an increasingly demanding commercial customer.

The InterServe 660 is clearly positioned to move into the traditional midrange system market and definitely has the performance to make the move.





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YEAR 2000

What you should be doing on your conversion. Managing, 83

Which IS professionals stand to gain from conversion projects and why? IT Careers

No!



By William A. Zeitz

Don't let the instant gurus feed on your insecurities. Don't let scare tactics keep you from confronting the issue rationally.

FALLING?

Yes!



By Louis J. Marcoccia

On Jan. 1, 2000, I'm going into the head-hunting business. Unless you respond to the challenge, you'll be in dire need of my services.



"Demonic Digits" ... "Tick, Tick, Tick" ... "Will your systems be ready when the clock strikes 12?"

Those are some headlines from magazines and journals this year. The constant stream of doom-and-gloom, sky-is-falling hype perpetuated by the trade press and the nouveau gurus has done more to damage the information systems department's image than reporting to a chief financial officer did in the 1970s. We're in danger of eradicating whatever progress IS has made in the past two decades toward becoming a true business partner and contributor to the corporate bottom line.

The widely publicized and often-quoted cost projections made by Gartner Group, Inc. more than a year ago also fueled the panic and spawned a get-rich-quick industry.

Your business partners outside IS are relying on you to provide competitive and innovative technology-based solutions to key business objectives. At the same time, they expect you to protect their businesses from potential year 2000 damage.

During the past year, I've refocused my consulting business to address the year 2000 issue because many clients have been panicked by the hype. And I'm not

alone. Consultancies such as Sior LLC in Princeton, N.J., International TechOrg, Inc. in Raleigh, N.C., and RCH Computer Consulting in Phoenixville, Pa., have also realigned their efforts.

These consultancies' goal, like mine, is to help companies address year 2000 problems without sacrificing competitiveness after the millennium arrives — when all those year 2000 companies and gurus are no longer available.

To achieve that goal, we've developed a two-pronged approach. The first part focuses on identifying the right set of automated tools to facilitate the conversion and allow time for value-added efforts. The brute force approach won't suffice. The second part brings together key business and technical executives with in a company for focused workshops

designed to identify the gaps between the business drivers and the existing application portfolio.

Senior IS executives are searching for the right balance and are unwilling to throw in the towel and give up their hard-fought position.

For example, Christopher Linfoote, information technology director at a London division of APV PLC, the international engineering company, knows he has a year 2000 problem with his application portfolio.



Yes, Virginia, there is a year 2000 problem. It may be the most significant change ever faced by the information technology industry. It will have an enormous impact on business applications, package solutions and systems software.

It will put some companies out of business.

In April, I testified at a U.S. congressional hearing as an expert witness on the problem. I

told hearing members that the only way we can delay the catastrophe is "to legislate the year 2000 away."

This is the only deadline that can't be pushed back — and still information systems departments ignore it. We're already late — some businesses will suffer severe problems earlier than 01/01/2000.

Why are so many heads in so much sand? Most affected systems aren't state of the art, for one thing. IS sees no glory in repairing these clunkers. It's like keeping your old car on the road another winter rather than buying a new car; you know it's wiser, but it's no fun keeping the old heap roadworthy.

And, of course, there's no sexy return on investment for IS to point to with year 2000 issues. Nobody wants to tell the bean counters that the company must sink millions of dollars into a project just

for the honor of staying in business.

Nevertheless, IS has to

take a deep breath and do just that. Right now.

There are two primary ways to correct the year 2000 problem. The first is to expand all date fields to a four-character byte and leave the existing software logic alone. That's the cleanest, most straightforward solution. It's permanent, it works for all modules, and future maintenance won't pose a problem.

But the date-field approach has drawbacks. It requires the conversion of all data files; conversion of programs and data files must happen at the same time; and some massive systems have to go down during the process — not an option with some applications in some organizations. Moreover, keeping the converted code in sync with updates to the current code is a boggling task in some cases.

The second approach is to leave the date fields as two characters but modify the software logic to handle the representation correctly. That's called the program logic approach. It has its own advantages. To begin with, there's no physical



There's also an initiative by software vendor Baan Co. to replace all of APV's SAP AG R/2 implementations. But wait — there's more. Business and IS executives are evaluating two major projects (one in the marketing and sales arena, and one a process-engineering data-management system) intended to provide APV with major competitive opportunities.

Does this look like an IS organization that can drop everything to throw bodies at the year 2000 problem? Of course not. Linfoote's dilemma is typical: He must balance priorities and develop a plan that protects the business from year 2000 failures while allowing IS to provide the competitive initiatives expected from his organization.

In another example, John Schmidt, year 2000 coordinator at Independence Blue Cross in Philadelphia, wants to add value to his company's conversion by using Lexington, Mass.-based Software Emancipation Technology's Discover Y2K product to re-engineer some of his inherited C and C++ systems rather than just making them year 2000-compliant.

How do you walk and chew gum at the same time? By not abandoning the leadership qualities and management skills that made you successful

in the first place.

Don't let the instant gurus feed on your insecurities. Don't let threats and scare tactics deter you from confronting the issue with a sane and rational approach. Above all, don't be misled into thinking that your only option is to commit all your resources until the millennium to fix the problem.

So, what's an IS executive to do? Don't panic. Statistics can be misleading, even when blessed by our industry press and gurus. Everyone knows that headlines sell newspapers. Remember, not all date fields are created equal, nor are all date fields affected. Get an independent assessment of the exposure your company has.

Inform your senior management of the exposure the business faces. Provide a balanced action plan with full costs and value-added benefits.

There's no need to panic today, but don't procrastinate. The longer you wait, the higher the risk and the more urgent the need to secure your airplane tickets to leave the country by December 1999.

Zeitz, formerly chief information officer at American Cyanamid's Agricultural Division, is president of Zeitz & Associates, a consulting firm in New York. His Internet address is zeitzw@aol.com.

chip that calculates dates, PCs, packaged software. Organizations need to review all aspects of their business to establish their year 2000 exposure. All systems that won't be replaced or retired by 2000 must be reviewed. Applications that will exist past 2000 must be corrected.

Within most organizations, there are client-developed systems that IS doesn't support. Those systems were developed or purchased by the business units. It's important to make a list of software lurking in the shadowy areas. IS must then decide whether to retire, replace or modify each system.

I have a message for IS executives who are attending sexy Internet classes, for chief executives who look at only current quarterly profits, for IS professionals who are spending their training budgets on client/server courses and for IS managers who understand the problem and know in their hearts that they aren't doing the right thing. On Jan. 1, 2000, I'm going into the year 2000, catastrophe-fix head-hunting business. If you fail to step up to the plate right now, guess who'll be paying through the nose for my services? Wake up and smell the year 2000.

For several years, Maroccia was the year 2000 project manager at the New York Transit Authority. He is now a year 2000 consultant. His Internet address is lmaroccia@aol.com.

SOUND OFF!

conversion of data (current or historical). There's no required synchronization of data files and program conversion. It can be phased in; some modules will require no conversion, and others will require only minor changes. Finally, only dates used in calculations must be changed.

What are disadvantages of the program logic approach? Many program modules will require extensive code changes for date fields used in calculations. In addition, in cases that involve a 100-year span, those applications will have to be expanded to an eight-digit date. That's typical with pension and life insurance applications, among others.

And, if an IS shop goes with this approach, the staff will have to be aware of the subroutines used to determine century by each application. Finally, each application in an organization can have a different number for its logic comparison.

Each method has serious benefits and pitfalls, which is why you needed a plan five years ago and really need one today.

The year 2000 problem affects nearly everything — any hardware that has a



PHOTOS BY JEFFREY GREENBERG

YEAR 2000

What you should do now to prepare for your year 2000 conversion. Managing, page 83

Sound off: Is it time to panic, or isn't it? In Depth, page 96

IT Careers

DEALS OF THE CENTURY

Year 2000 conversion projects
could turn select IS professionals
into corporate superstars

By David Weldon

ROSS CARTER HOPES TO ADD 10 COBOL PROGRAMMERS TO the information systems staff at Allmerica Insurance Co. in the next few months. But if those programmers are anything like the last 10 hires, they won't come easily or cheaply.

Worcester, Mass.-based Allmerica is nine months into a year 2000 conversion effort. Some of the work is being outsourced to 17 contractors working on-site. But much of it will be handled by in-house staff, says Carter, who is vice president of application services.

Carter struggled this year to add 10 programmers. Those hires identify, rewrite and test date-sensitive code from the company's inventory of 13 million lines of code. The bulk of their work isn't technically difficult, but Carter says the older nature of the skill, combined with an extremely tight job market, made it costly and "very difficult to find them."

COBOL COMEBACK

An old skill will earn new respect and higher salaries as the backbone behind year 2000 conversion projects.

"Five years ago, Cobol programmers were very marketable and had no trouble finding jobs," says William Grady, director of information technology search at Romac International in Boston. Then came client/server technology. And in terms of new hires, "Cobolers faded off, almost to the point of extinction," he says.

But now they're back — and with a vengeance, Grady says. As the computer

industry races to deal with year 2000 conversions, Cobol programmers are among the most sought-after IS professionals. Indeed, Cobol ranked as the fourth most in-demand language skill for the coming year in the recent *Computerworld* Annual Skills Survey. "Suddenly, the demand is up by a lot, but the supply isn't," Grady says.

Carter knows that bittersweet reality. When recruiting the 10 programmers for Allmerica this summer, he was often forced to hire programmers who had limited experience. Or he brought in "retirees" — former Cobol programmers who had been laid off in downsizing efforts.



For the next round of hiring, Carter's options will worsen.

Many companies that have been in the assessment phase of year 2000 conversions during 1996 will begin actual code conversion next year. That will require large-scale staffing, sending companies and outsourcers scrambling for any available talent. Cobol has been considered a dead skill, so IS professionals haven't been lured to it, and there aren't a lot of fresh faces.

The supply-and-demand gap will drive up salaries "20% to 25% more than [employees] normally can get," Carter predicts, based on the current salaries he pays. The huge demand also will force

companies to hire more retirees, those changing careers, recent college graduates and outsourced talent. It will also persuade "people who have skills beyond Cobol to look at the opportunity to get rich quick and to go back and use their old skills," Carter says.

Companies that will have the easiest time will be those converting their systems as well as their code, Grady says. Those companies will have both higher salaries and new skills to offer.

The Cobol gap may also encourage corporate raiding, says Janis Russell Love, president of People Unlimited, an IS consultancy and recruiting firm in Charlotte, N.C.

"We haven't seen a lot of call for Cobol programmers and mainframers in the past five years, and these people have really been put on the back burner, getting pretty low pay," Love says. Suddenly they're in demand and not very loyal.

PROJECT MAKES PERFECT

Top project management skills can provide IS professionals with vital leadership roles and a quick rise to stardom.

Armstrong World Industries, Inc. in Lancaster, Pa., is about to start serious staffing for its year 2000 project. Robyn Alspach, general manager of business information services, says she expects to "rent some Cobol programmers." But her first step was to appoint a project manager from within.

"We started with an internal person to do the assessment. We had someone who was available, had good organizational skills, had system knowledge and was good with communication," Alspach says.

As the brains behind the conversions, a project manager such as this could earn \$100,000 by the end of next year, according to Grady.

They can also look forward to a rare opportunity to gain new skills, learn the business, gain visibility and shine in the eyes of top management.

"Project managers who do well will become critical to their organizations. They will know all the interrelationships of the systems and be better able to compete," says Gary Ross, director of the year 2000 practice at Comtex Information Systems, Inc. in New York.

CONTRACT KILLINGS

In an already-strapped job market, conversion projects will boost the role of contract IS professionals.

Although Carter struggled to find 10 Cobol programmers this year, he notes that his "outsourcer seems to be able to find what they need."

Outsourcers have been doing hurried hiring this year for their clients' year 2000 work. In the race to build up staffs, outsourcers are blanketing the local IS job markets, tempting relocators, raiding competitors, forming alliances and scouting campuses.

Those most in demand include the two extremes in conversion work: top-rate project managers and "grunt work" programmers.

By offering bigger salaries to experienced project managers and programmers, outsourcing companies can potentially "lure a lot of talent. They can then put them back to work in the same shops," says Leland Freeman, a year 2000 consultant at Management Support Technologies in Framingham, Mass.

Carter says he expects the ranks of IS contractors to explode with people entering the industry who couldn't have otherwise. Outsourcers are scooping up programmers wherever they can find them, and they are creating them where they can't.

For example, Bridget Gray and Andrew Crouter are among several recent college recruits at Complete Business Solutions, Inc. (CBSI) in Farmington Hills, Mich. CBSI is tapping local college co-operative education programs for students skilled in computer science and mathematics. They will begin intensive Cobol training this month, followed by immediate placement at a client site.

Crouter, from Flint, Mich., is a math major with a minor in computer science. He considers his first programming assignment an opportunity to "check out the industry" and see if it is a career fit. Gray, an IS management major from Lincoln Park, Mich., is convinced IS is her career destiny.

She hopes year 2000 work will give her a head start.

CONSULTANTS CASH IN

Year 2000 promises to be a very good year for consultants.

Ideally, year 2000 project managers "come from within the organization," says Brad Myers, director of the year 2000 practice at Actoras Consulting, Inc. in Indianapolis. The reality is "there aren't enough people with the skills needed for these projects," he says.

"Clients need a good, strong project manager who has been around a large conversion or maintenance project and has good technical analytical skills," Ross says.

So consultancies are luring talented project managers with promises of big

salaries, stay-on incentives and project completion bonuses.

For IS contractors with stellar skills, these stay-on bonuses can run as high as \$150,000, Freeman says. And that's on top of an annual salary that can be equally as high.

Some companies will be paying these big bonuses, too, Love says. "But many can't. They can't compete with the consulting firms," she says. As a result, many people will jump ship and go with consultancies, Love predicts.

Why such huge salaries?

Myers says the project managers leading these efforts must be near-perfect. They must understand the firm's entire system enterprise, the business, the technical challenges and the skill needs of project staff.

Grady says he expects to see many IS professionals with technical skills and project management experience try to launch independent consulting careers around year 2000 work. But he advises that, like any hot IS skills set, they may have a limited shelf life.

"Independent contractors are rentable for the specific experience they have and that alone," Grady says. "It will slam shut at a certain point. They will be paid a lot of money for a short amount of time. But then they must find a way to re-engineer themselves."

Weldon is Computerworld's senior editor, IT Careers.

SALARY EXPECTATIONS

IS hiring managers and recruiters expect to see the following salaries for year 2000 projects:

SKILL OR JOB FUNCTION	Year 2000 conversion consultants	Project managers	Cobol programmers
SALARY EXPECTATION (LOW ESTIMATE)	\$100,000	\$80,000	\$60,000
SALARY EXPECTATION (HIGH ESTIMATE)	\$150,000	\$100,000	\$80,000

Year 2000 career RESOURCES

CONFERENCES AND SEMINARS

PROJECT WORLD
Dec. 9-13
Santa Clara, Calif.
(617) 431-9797
E-mail: admin@projectworld.com

SPG YEAR 2000 CONFERENCE
Feb. 9-11, 1997
Washington
(508) 366-3344

DCI'S YEAR 2000 ISSUES AND ANSWERS CONFERENCE

March 25-27, 1997
Phoenix
(508) 470-3880
www.dci.expo.com/2000AD

ONLINE RESOURCES

THE YEAR 2000 INFORMATION CENTER
www.year2000.com/cgi-bin/y2k/year.2000.cgi

COBOL HOME PAGE
www.cba.uc.edu/-HUBER/COURSES/COBOL/CALENDAR.HTML

IBM COBOL NEWSLETTER
www.software.ibm.com/ad/cobol/cobnews.htm

JOB LISTINGS

IT CAREERS
www.careers.computerworld.com
Computerworld's online career resource site, with job postings and training resources.

CAREER MART
www.careermart.com/
Allows for job searches by state/region, job categories and, optionally, by company name.

JOBWEB
www.jobweb.com/
An ideal site to search specifically for IS jobs that require only one to three years' experience or those aimed at college graduates.



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KPMG, The Global Leader in professional services firms knows that the arrival of the millennium will impact every technologically advanced business in the world, and they're determined to stop millennium madness before it begins. There has never been a time in information technology history when we have had to draw upon the collective skills of so many different resources.

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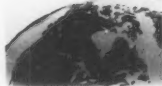
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Our positions require IT project experience in vendor package implementation or business applications development. Technology consulting is a strong plus. Specifically, candidates should have a solid programming background (e.g., COBOL, BAL) in a large mainframe (e.g., MVS) environment, preferably with on-line (e.g., CICS) and/or database (e.g., DB2) expertise. Experience in project management is highly desirable, and Year 2000 software tools (e.g., AdPac, Visio) are a plus. Both opportunities involve travel.

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The Village of Woodridge, DuPage, Will and Cook Counties, Illinois (population estimated at 29,000), is seeking an Information Systems Coordinator.

The ideal candidate will have Local Area Networks experience. Knowledge of the Novell 4.0 operating system is required; a CNE designation would be a plus. Must be a self-motivated individual. He or she will be a systems professional with strong interpersonal and managerial skills and one who keeps abreast with the state-of-the-art technologies. Ethernet, SNA technology and Microsoft Office are necessary. The successful individual will have a strong background in planning methodology for system integration.

The salary range is from \$43,368 to \$59,072. The Village offers an excellent benefit package and working conditions. Submit resumes, salary requirements and three (3) work-related references to Kathleen Rush, Village of Woodridge, 1900 West 75th Street, Woodridge, IL 60517, by Friday, December 13, 1996.

Applicants with disabilities who will need accommodations in order to complete any portion(s) of the pre-employment application process should contact the Administration Department. Equal Opportunity Employer

Information Technology Director

Salary Negotiable

The City of Charlotte, NC is seeking an individual to direct the City's management information systems and related information technology services for a broad and complex range of municipal service providers; provides leadership in formulating an information technology vision and implementation plan for the entire City organization. Responsible for consulting with departments as systems and computer applications are developed; determines the City's technological infrastructure needs; and assists the organization with enhancing business and communications processes through greater use of information and technology; leads a staff of approximately 60 employees with an annual budget of \$6 million. Requires four year degree in business/public administration, computer science, management information systems or related with masters degree desirable; seven to ten years responsible, managerial experience in a related environment. Excellent communication skills are critical and a managerial style that motivates employees and empowers users is essential.

Mail resume and salary history to City of Charlotte, Human Resources, 600 East Fourth Street, Charlotte, NC 28202, OR FAX to: (704) 336-6588, by JANUARY 18, 1997.



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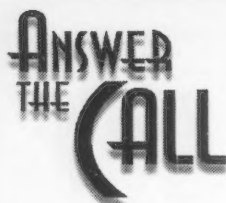
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DIRECTOR OF INFORMATION TECHNOLOGY CUSTOMER SERVICE

Provides Information Technology support to the Sprint PCS "Customer Care" organization. You will act as "CIO" to Customer Care and as its liaison with the Information Technology organization to facilitate development of business systems which will provide functional support and add competitive advantage to the company. The qualified candidate must have in-depth knowledge of customer service business processes, with 10+ years experience directing Information Technology resources and development projects. MBA is highly desirable, especially if the undergraduate degree is in a technical discipline. **Job Code: DCS**

PRODUCT LAUNCH TEAM MANAGERS INFORMATION TECHNOLOGY

These positions will be responsible for participating on dedicated cross-functional product development teams to ensure that information technology systems and procedures support the planning and development of Sprint PCS product sets. Immediate positions are available related to call features, wireless messaging, CDMA/AMPS roaming, Over-The-Air Service Provisioning (OTASP) and data applications. The successful candidate will be a high-energy manager with excellent information technology systems knowledge and significant product development expertise. Strong verbal and written communication skills essential. MS in Computer Science/Engineering or an MBA is highly desirable. **Job Code: PLT**

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COBOL programming (MVS); systems analysis; IBM mainframe; JCL, CICS, IMS/DC, IMS/DB, DB2. Some travel required.

NETWORK/SYSTEMS ADMINISTRATOR -
SCHAUMBURG, IL
Sun/OS, Solaris, IBM AIX, HP-UX, Windows 95, TCP/IP networking. Also, Perl, shell scripting, Perl, sendmail, MS Mail, C++, DNS, NFS, NFS.

SOFTWARE ENGINEERS/SR. SOFTWARE ENGINEERS -
SCHAUMBURG, IL
C/C++, UNIX shell, compiler construction tools, DB2 or MSCS in lieu of experience. Sr. level requires 5+ years' for MSCS and 3+ years' programming, plus CLIPS or rule-based systems development.

Other opportunities in Billerica, MA include:

- Project Leaders
- Marketing Specialist
- Webmaster

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Programmer/Analyst: Programs, tests, designs, develops and modifies software applications for data processing and management information systems to support social science research development. Performs software development using C++ and UNIX shell including development graphic user interfaces using embedded C and C++ for implementation of relational database management system including use of embedded SQL. Requires Bachelor's degree in Computer Science. Also requires three months experience in the job to be performed or nine months experience as a Software Engineer. If experience in related field, entire experience must include design and testing of a financial management related database system which consisted of accounting and data processing applications using C or C++. Education to include completion of one project in the implementation of database application using embedded SQL and C++ as one project in the development of distributed Client-Server application architecture. Hours: 9:00 a.m. - 5:00 p.m. 40 hours per week at \$36,000.00 per year salary. Must have proof of legal authority to work permanently in the United States. Please send resume to: Debra M. Russell, Personnel Manager, University of Chicago, Chapin Hall Center for Children, 1313 East 60th Street, Chicago, Illinois 60637. No Calls.

SOFTWARE ENGINEER: Performs network analysis, designs, develops, tests, and implements customized software (NTAS 3.5, NTAS 3.51). NETEUI-METBIDS Extended User Interface, Transmission Control Protocol/Internet Protocol (TCP/IP), MS LAN Manager, Apple Local Talk network, Novell Network. Performs MS NTAS routing services using Motorola BitSurf Pro via Integrated Services Digital Network (ISDN) connection. Administers a 13-computer network using a 10BaseT network topology linked individually to internet. Maintains Linux Server mail gateway using the Small software package. Develops internet Web application combining relational database with world-wide web using Visual Basic 3.0, 4.0, Visual C++, MS Access, MS SQL server. Implements software applications in Netscape Commerce Web Server, Compaq Worldwide deployment of "Photo Library System", GSI/Graphic Animation, Macromedia Shockwave, using advanced web languages such as Virtual Reality Modeling Language (VRML), Java, JavaScript, and hypertext markup language (HTML) and Common Gateway Interface (CGI). Requires Bachelor's degree in Computer Science. \$33,700/year. 40 hrs/wk. Apply at Texas Workforce Commission, Houston, Texas, or send resume to the Texas Workforce Commission, 1117 Trinity, Room 4247, Austin, Texas 78701, J.O. #TX7857409. Ad Paid By An Equal Employment Opportunity Employer.

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NETWORK/SYSTEMS ADMINISTRATOR -
SCHAUMBURG, IL
SunVOS, Solaris, IBM AIX, HP-UX, Windows 95, TCP/IP networking. Also NetBios, shell scripting, Perl, sendmail. MS Mail, C/C++, DNS, NFS, NIS.

SOFTWARE ENGINEERS/SR. SOFTWARE ENGINEERS -
SCHAUMBURG, IL
C/C++, UNIX shell, compiler construction tools, DB2 or MSCS in lieu of experience. Sr. level requires 5+ years (or MSCS and 3+ years) programming, plus CLIPS or rule-based systems development.

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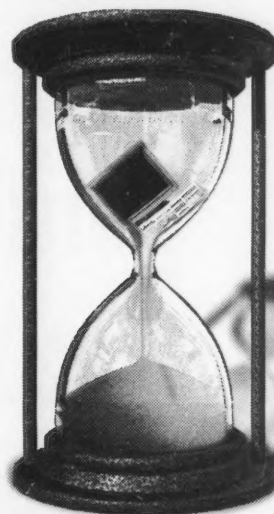
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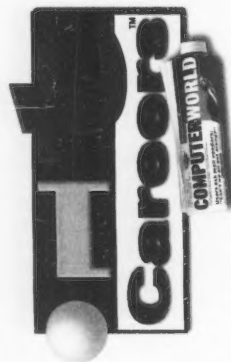
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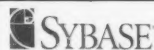
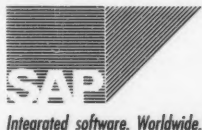
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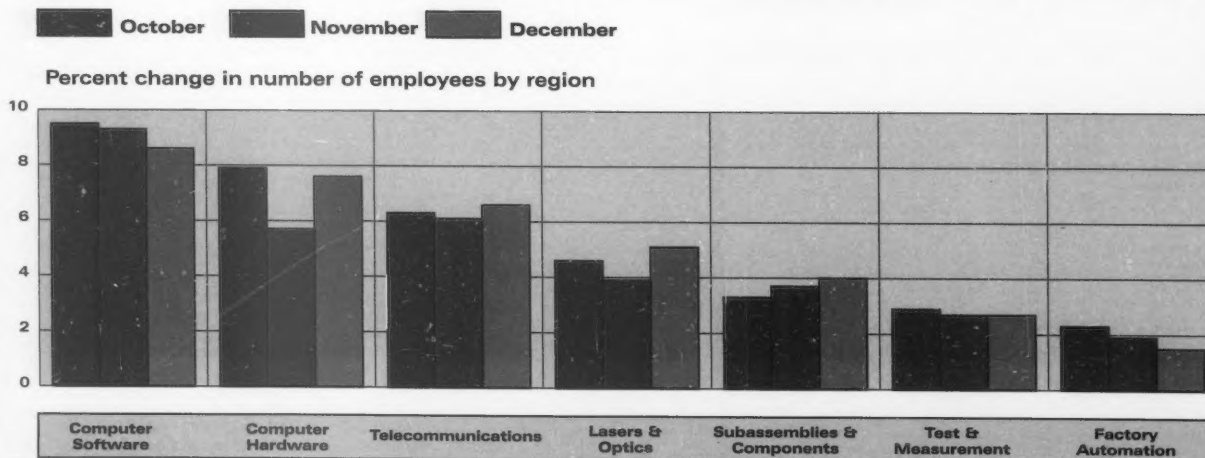
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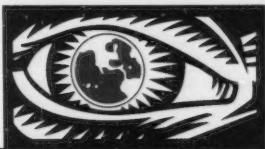


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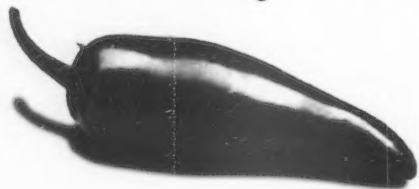
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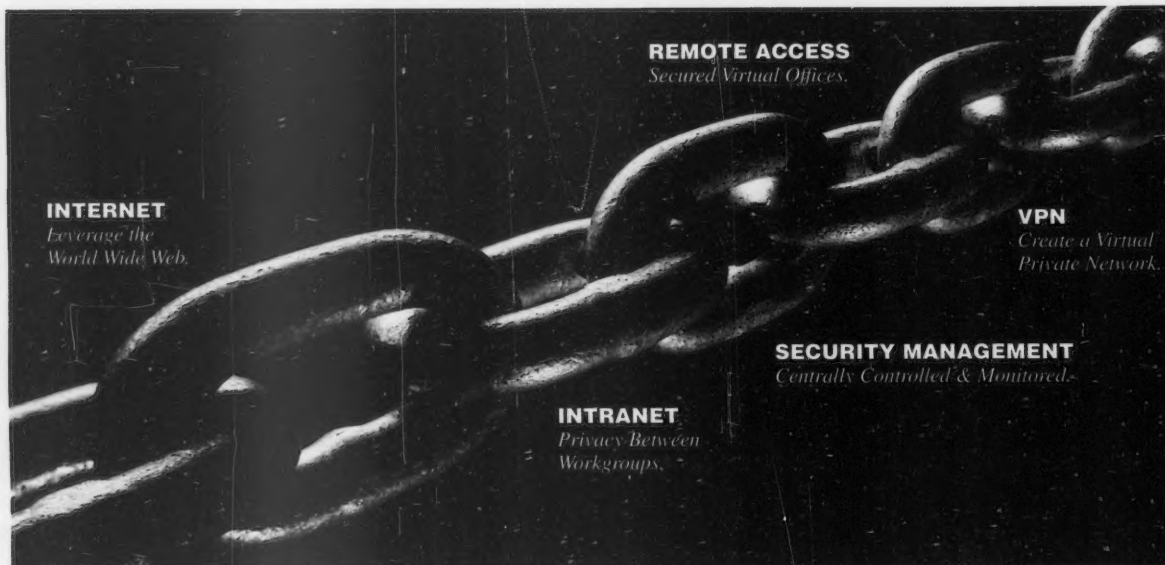


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PRINTERS, COPIERS AND MORE . . .

MULTIFUNCTION MACHINES GET SERIOUS

By Amy Malloy

The multifunction market is the victim of poor nomenclature and misconception, but, according to analysts, users are taking an interest in that market and setting it on an upward path.

So what is a multifunction machine? It's a product that performs at least two of the following functions: copying, scanning, printing or faxing. As for the name, the machines have been referred to as multifunction products, hydras, multifunction printers and multifunction peripherals, to list a few.

Analyst projections indicate that the multifunction product (MFP) market will have greater growth than its single-function competitor. It will grow 60% vs. about 1% growth for the single-function market by the year 2000, projects Barry Tepper, a senior consultant at CAP Ventures, Inc., a Marshfield, Mass.-based market research firm and consultancy that focuses on the document imaging market.

That market is divided into three categories: the high-end production products, such as those used at data centers, that require a trained operator and cost up to \$270,000; the low-end personal products; and, in the middle, workgroup products for general office use, says Andrew Johnson, senior industry analyst in charge of Dataquest's new facsimile and

MFP service.

The corporate environment is not limited to use of the high-end or even the workgroup products. Bureau or telecommuting employees reap benefits from access to an MFP, which, in turn, saves the company from spending extra dollars to buy three or four separate products. Analysts say that some companies even provide office employees with individual units for convenience reasons.

For instance, an executive and an assis-

tant might require privacy with regard to faxes sent and received, as well as printouts. The "credenza market" is what Tepper calls that particular niche, aptly named after the section of the office where such a machine might reside.

The workgroup portion of the market is divided between fax-based and copier-based machines. Typically, both types of machines offer printing capability as the additional function. Other functions may also be available, but copying and faxing tend to be the two primary functions, according to Johnson.

Those products are generally more robust in one area, but some products do perform two functions equally well, according to Tepper. However, because of the lack of consumer knowledge about that market, those selling the products generally group them into one of the single-function areas, Tepper says.

This type of limited performance is a hindrance to the larger office environment. "These products currently emphasize one function over another. When you move into the corporate setting, these compromised functions are not acceptable," says Keith Kmetz, a research manager at International Data Corp. in

Framingham, Mass.

But analysts predict the MFP's integration of functions will improve. "The copier vendors in 1997 are better prepared to deal with supporting the printing functions on the digital copier," Johnson says.

According to analysts, another part of the reason for the slow acceptance is cost. Copier-based MFPs are digital machines that previously cost 30% to 40% more than the typical analog copier, according to Johnson.

Now, however, digital machines cost only about 10% more than analog machines, he says.

"My bet is that 1997 will be the year for [the workgroup] segment. It has been the laggard of the three segments because of lack of product and a premier price for those products," Johnson says.

Last year, only 3% of total sales of products that scan, fax, print or copy were multifunction products that perform two or more of these functions. By the year 2000, Tepper predicts that 22% of all sales in this market will be from multifunction machines.

Malloy is Computerworld's assistant researcher.

Multifunction segments		
Estimated vendor rankings for 1996		
ENVIRONMENT	COMPANY	RANK
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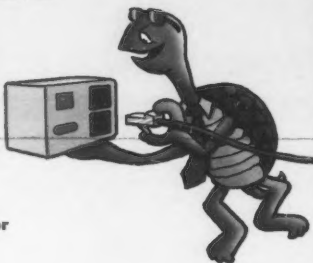
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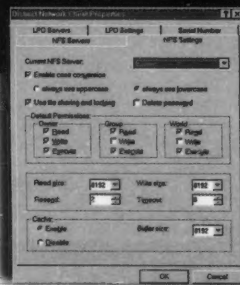
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Finance & Investing

GET SMART

By Rosemary
Cafasso

Using new online tools, investors can take charge of their 401(k) funds



Face it, you're getting older. But take heart, you're getting wiser, too.

Or at least you should be. It isn't enough to just dump a chunk of your salary in your company's 401(k) plan and ignore it. You now may be able to take advantage of new online services to better manage your nest egg.

So call your human resources department to find out what is available to you. An increasing number of companies are offering employees online access to their 401(k) fund so they can manage it themselves. Typically, companies are providing this service via their 401(k) plan manager, such as Fidelity Investments in Boston or The Vanguard Group of Investment Cos. in Valley Forge, Pa.

In addition, independent firms such as 401k Forum, Inc. in San Francisco are offering 401(k) planning services to companies to help educate their employees.

Since late last year, Fidelity and Vanguard have signed up nearly two dozen companies for their firms' 401(k) management software and services. These offerings let their clients' employees go online and check 401(k) balances and perform a range of tasks, such as changing the mix of funds.

Typically, client companies can provide their employees this service if they have desktop PCs and standard Internet access such as Netscape Communications Corp. browsers. In some cases, employers are opting to pay for a direct link to the fund manager's server so they aren't sending their employees onto the Internet.

Cost to employers will vary depending on the number of functions they select, the type of access they want to the fund

manager's software and the amount of customization they request for their 401(k) management package. Fidelity, for instance, provides its service for free via the Internet.

Vanguard offers basic account balance access for free. It also will put together a full set of services via a direct link to its

server with complete customization. That package can go as high as \$60,000, according to Shellie Unger, a principal of participant education services at Vanguard.

Since rolling out its 401(k) management tools in June, Fidelity has signed up 20 clients, says Frank Armo, a vice president at the company's Institutional Retirement Services Co.

Vanguard officially launched its 401(k) service in September 1995. It has publicly announced a few clients, including Compaq Computer Corp. and Bellcore.

BBN Corp. in Cambridge, Mass., earlier this year began testing Fidelity's 401(k) management tools and now has nearly 500 employees regularly using them to manage their accounts, says Steve Heinrich, vice president of human resources at BBN.

"The benefit is you can see your account at any given time and really see how it is performing," Heinrich says. "It's changed the way we interact with our 401(k)s from something we only had access to periodically to something that is at our fingertips anytime."

Bellcore in Morristown, N.J., has

signed up for the Vanguard 401(k) management service with a goal of implementing it by the end of January.

"A lot of people need help in this area," says John Michalyszyn, a manager of pension and 401(k) savings plans at Bellcore. "We talk to employees about how much they should save, but going online will allow them to [create a retirement] model so they will know how much they need to save."

Despite these benefits, observers say there likely will be a slow ramp up to online 401(k) management. In some cases, people may experience the same hesitation about executing 401(k) financial transactions online as they first experienced using automated teller machines when they came on the market years ago.

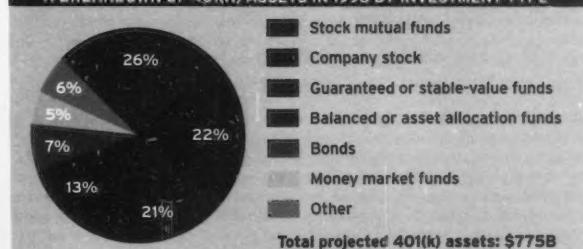
Armo notes that while a variety of companies have signed up for Fidelity's 401(k) tools, "it's the high-tech firms that are moving ahead more quickly." These companies typically have more of a ready-to-go infrastructure, including PCs and Internet access.

Once investors grow comfortable with online 401(k) management, they could well find it rewarding. Joe Craig, a scientist who works at an East Coast research firm, says he has been involved in a "self-directed" 401(k) plan his company set up to give employees full control.

"It's nice in the sense that at the end of the day, there's no one to blame but myself," Craig says. "I like the way it's set up."

If your employer doesn't offer online tools, that doesn't mean you can't get more control over your 401(k) fund. Individual investors can find 401(k) education materials on their own by accessing such World Wide Web sites as www.401K.com, which is sponsored by Fidelity.

A BREAKDOWN OF 401(K) ASSETS IN 1996 BY INVESTMENT TYPE



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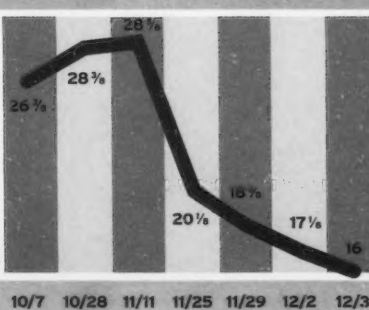
The stock price slide (see chart) has occurred despite another quarter of record revenue and recently announced contracts for SystemSoft's SystemWizard support software. Revenue for the third quarter ended Oct. 31 was \$10.3 million, a 67% jump from the same period last year. Net income was \$1.7 million, up from \$826,000.

The trouble began with the release of a report from the Center for Financial Research and Analysis, a research firm in Rockville, Md. The report raised questions about SystemSoft's accounting practices. The research firm declined to comment last week. But SystemSoft and at least Wall Street analyst say the research firm was out of line in suggesting that the software company had inappropriately recorded some revenue.

Nonetheless, the suggestion of impropriety was enough to send the stock price down, says James Poyner, an analyst at Oppenheimer & Co. in New York. Poyner says the report is "full of baloney" and says he is sticking to his "buy" rating for SystemSoft. Some investors also were rattled by the announcement of a contract with Packard Bell-NEC that they had expected to be larger. SystemSoft CEO Robert Angelo last week said the contract could bring in as much as \$20 million in the next three years, a figure the company didn't release originally.

But Poyner and other analysts say SystemSoft is in good shape overall. "I am saying to investors, 'Put on your thinking caps here,'" Poyner says. "Don't let an ill-informed newsletter or the panic selling skew the facts for you." — Rosemary Cafasso

SYSTEMSOFT SLIDES



52 Week Range				Dec 6				52 Week Range				Dec 6				52 Week Range				Dec 6											
2 Yr				CHG				2 Yr				CHG				2 Yr				CHG											
Computer & Data Systems																Rainbow Technologies Inc.															
COMS	79.75	33.50	3COM Corp. (H)	79.63	4.06	5.4		RNDI	20.50	14.63		20.18	1.50	7.9																	
AIT	68.88	49.63	AMETECH Corp.	17.88	-0.88	-1.5		REOB	61.00	18.25		Red Back Systems Inc.	22.10	-1.00	2.4																
T	68.88	31.25	AT&T	18.63	-0.25	-0.6		SAFE	58.25	29.25		Safaricom Corp.	41.00	-1.00	2.4																
ASND	74.88	27.75	Ascend Communications	69.50	-1.63	-2.3		SCOC	9.13	5.50		Security Dynamics Tech.	16.18	1.13	10.2																
BNIN	12.00	3.25	Banyan Systems Inc.	6.00	1.75	41.2		SPCO	4.25	1.00		Software Publishing Corp.	1.11	-0.16	-14.3																
BAY	49.00	18.13	Bay Networks Inc.	24.25	-2.13	-8.1		SOAK	39.75	18.00		SOA Inc.	10.88	1.25	11.8																
BEL	80.38	43.50	Bell Atlantic Corp.	60.63	-1.88	-3.0		SOTA	19.75	9.19		Star Trek Inc.	13.13	0.25	0.8																
BLS	45.88	35.25	Billsouth Corp.	39.13	-1.00	-2.5		SSW	81.38	28.25		Sterling Software Inc.	23.13	0.25	0.8																
BRET	42.25	10.00	Brightstar Technology	29.00	-2.00	-7.8		SYMS	38.18	15.50		Structural Dynamics Research	20.25	0.81	4.2																
CSC	43.63	26.50	Cabletron Systems	40.88	0.13	0.3		SYBS	18.18	15.00		Stratus Inc.	19.18	1.63	8.2																
CSIC	91.25	20.63	Cascade Communications	67.63	-1.00	-1.5		SYMC	28.75	8.75		Symantec Corp.	14.88	0.56	3.9																
CCRM	24.13	11.75	Centurion Communications	13.63	0.11	0.9		SWPS	50.50	27.50		SynOptics	45.50	0.75	1.7																
CLCD	68.88	32.00	Cisco Systems Inc. (H)	65.25	-2.38	-3.5		SWST	13.63	4.13		System Software Assoc.	11.13	0.75	7.4																
CLIR	9.25	3.50	Compression Labs Inc.	4.00	-0.13	-3.0		SYSP	36.50	4.38		SystemSoft Corp.	17.13	-1.00	-5.5																
CMTI	10.50	4.00	Computer Networks Tech.	6.13	0.00	0.0		TRUV	9.63	2.50		Television Corp.	3.25	0.50	18.2																
KCOM	13.25	4.75	CrossCom	5.75	-0.38	-6.1		VSW	37.50	8.38		Veeva Laboratories Inc.	10.25	0.50	5.1																
DIGI	43.25	12.63	DSC Communications	17.38	-0.25	-1.4		VWRE	12.63	5.50		Vyware Software Inc.	7.25	-0.38	-4.9																
FORE	44.75	23.38	FORE Systems Inc.	18.63	-0.25	-1.4		WALK	15.63	6.25		Walker Interactive Systems (H)	14.44	-0.56	-3.8																
COC	20.38	9.13	General Datacom Inds.	11.00	0.00	0.0		WALL	37.50	12.25		Wall Data Inc.	14.50	0.00	0.0																
CSR	44.50	31.00	General Signal Networks (H)	42.00	-0.50	-1.2		WANG	26.13	15.38		Wang Laboratories Inc.	20.63	-0.63	-2.9																
CITE	49.25	37.75	CITE Corp.	44.50	-0.38	-0.8																									
LU	53.13	29.75	Lucent Tech.	48.75	-2.50	-4.9																									
MADCI	48.63	21.13	Madison Networks NY	10.88	-1.88	-20.8																									
MCC	31.88	21.38	MCC Communications Corp.	18.75	1.50	5.0																									
MNPI	34.50	5.50	Microcom Inc.	13.63	2.38	21.1																									
NETC	14.00	5.38	NetManage Inc.	7.63	1.88	24.6																									
NETX	10.88	3.75	Netrix Corp.	5.25	0.25	5.0																									
NCDI	9.88	2.88	Network Computing Devices	9.15	1.50	16.8																									
NIRE	30.00	11.13	Network Equipment Tech.	14.50	-1.00	-6.8																									
NETC	24.63	15.00	Network General	18.13	0.13	0.7																									
NN	37.25	19.25	Newsbyte Networks Corp.	29.50	0.63	2.2																									
NT	67.63	40.13	Northern Telecom Ltd.	60.63	-5.13	-7.8																									
NOVL	17.00	8.75	Novell Inc.	10.63	0.38	3.4																									
NYN	59.25	42.00	Nynex Corp.	45.38	-0.88	-1.9																									
OCTL	31.75	12.63	Optical Communications Corp.	18.25	0.38	2.1																									
ODSI	29.00	11.88	Optical Data Systems Inc.	13.13	0.06	0.5																									
PAC	37.63	25.88	Pacific Telesis (H)	35.25	-1.00	-2.7																									
PCTL	44.72	24.50	Petroleum Corp.	39.75	1.25	3.2																									
PTCN	7.88	2.00	Photronics	3.56	0.19	5.0																									
RACR	7.00	1.50	Racal Inc.	4.75	0.38	8.6																									
RETR	11.88	8.13	Retix Inc.	8.13	0.88	11.2																									
RSC	60.25	42.00	RSC Communications	51.00	-2.50	-5.0																									
SFA	20.38	12.00	Scientific Atlanta Inc.	16.00	0.75	4.9																									
SHV	87.25	25.13	Shiva Corp.	74.00	0.75	1.0																									
FOIN	45.50	34.50	Sprint Corp. (H)	41.38	-1.50	-3.7																									
SMSC	21.13	8.38	Standard Microsystems Corp.	11.25	0.63	5.9																									
USIS	105.50	32.75	US Robotics	74.63	1.88	2.6																									
USW	31.50	27.25	US West Inc.	31.38	1.12	3.6																									
XTEL	31.75	9.50	Xircom	20.00	0.25	1.3																									
XTLM	76.00	32.25	Xylan Corp.	32.25	-2.25	-6.2																									
PCs and Peripherals																Advanced Micro Devices															
AALR	14.13	5.88	Advanced Logic Research	14.13	1.94	15.9																									
AAPL	141.13	16.00	Apple Computer Inc.	23.13	0.69	2.8																									
ASST	10.00	5.13	AST Research Inc. (L)	5.13	0.00	0.0																									
CPQ	82.88	35.38	Compaq Computer Corp.	82.63	4.00	5.1																									
DELL	112.50	21.00	Dell Computer Corp. (H)	112.50	12.50	12.5																									
CHTR	18.00	10.00	Chatterbox Corp.	18.00	1.75	10.3																									
HWP	57.75	34.88	Heurley Packard Co.	54.88	0.75	1.4																									
MUES	23.50	8.75	Melco International Inc.	18.88	0.13	0.7																									
NECP	18.88	12.38	NEC Corp.	18.88	0.26	1.4																									
SGI	38.75	17.88	Silicon Graphics	24.50	0.20	0.8																									
SUNW	70.25	36.00	Sun Microsystems Inc.	58.00	0.75	1.3																									
Software																Advanced Micro Devices															
ADBE	74.25	28.50	Adobe Systems Inc.	40.75	1.13	2.8																									
AMSW	7.13	3.63	American Software Inc.	5.50	-0.13	-2.4																									
APLX	42.50	18.13	Apple Inc.	20.50	1.38	7.2																									
ARSW	82.25	21.00	Amos Software (H)	26.50	1.50	6.0																									
ADSI	44.25	18.50	Autodesk Inc.	27.75	1.25	4.7																									
BCSS	26.25	14.88	BSC Systems Inc. (H)	21.00	-0.25	-1.1																									
BMCS	47.75	18.63	BMC Software Inc.	42.88	-0.88	-2.0																									
BOUL	33.50	19.75	Boule and Bannock	29.00	0.00	0.0																									
BORI	21.25	4.75	Borland Int'l Inc.	7.50	-0.81	-9.8																									
BOBY	35.50	8.63	Business Objects	12.00	-0.25	-2.0																									
CATN	11.88	4.00	Centura Software Inc.	4.25	-0.06	-1.4																									
CNTR	7.13	2.63	Centura Software	3.25	-0.13	-3.7																									
CVE	36.63	14.13	Chivette Software Inc.	30.38	0.00	0.0																									
COCN	35.50	11.13	Cochran Inc. (H)	31.50	-1.50	-4.9																									
CA	67.88	33.88	Computer Associates	67.75	-3.75	-5.7																									
CWN	11.50	5.75	CompuShare Corp.	8.38	0.13	1.6																									
CPWR	61.00	15.50	Computer World Corp.	54.63	2.63	4.6																									
CSRE	32.00	10.75	Covis Inc.	14.75	0.00	0.0																									
COSE	18.00	6.56	Corel Corp.	7.75	-0.19	-2.4																									
DWTL	11.00	3.13	Datavision Technologies Inc. (L)	3.13	0.38	10.3																									
FIE	67.00	20.00	Filenet Corp.	34.75	2.25	6.9																									
FETE	81.75	24.75	Force Systems Inc.	36.38	4.13	12.8																									
FTPS	40.63	4.88	FTP Software Inc.	11.00	0.00	0.0																									
HUMCS	51.56	23.00	Hummingbird Comm. Ltd.	29.75	-1.75	-5.6																									
HWSD	25.00	9.75	Hew	22.50	1.63	7.8																									
HEC	16.25	11.00	Heurley Packard Co.	15.13	2.18	20.9																									
INTC	31.75	18.88	Intel Corp.	31.75	0.13	0.4																									
INCR	20.31	8.63	Intergraph Corp.	9.88	0.88	9.7</																									

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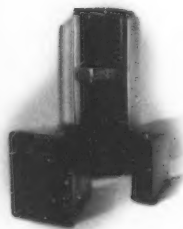
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Microsoft pushes OEMs

CONTINUED FROM PAGE 1

that preload any of the Windows operating systems agree to have their systems boot to a Windows screen before showing anything else.

What raises the specter of antitrust violations, analysts said, is that computer screens are literally becoming doorways to the Internet and other online services.

And the assumption is that because most people probably will take the first path offered to them, Microsoft will profit from a built-in advantage.

"All we are asking is that Windows be allowed to run in its entirety — to allow consumers to see the Windows desktop and choose whether they want to use that or whether they want to choose another provided by the OEM," said Mark Murray, a Microsoft spokesman.

The most obvious alternate interface would be Netscape Communication Corp.'s forthcoming Constellation, which will let users toggle between desktop applications and the Internet.

If the first thing users see on an Internet-enabled desktop is Windows or the Active Directory — Microsoft's planned Internet shell — then Microsoft theoretically would have first dibs on steering end users to World Wide Web sites. Microsoft might even be able to command as-yet unspecified fees for Web access.

John Robb, an analyst at Forrester Research, Inc. in Cambridge, Mass., said Microsoft's attempts to renegotiate OEM licenses in favor of its operating systems may have some far-reaching implications.

"There is the potential that Microsoft Office, Windows 95 and even the icons will be turned into a legacy way of interacting with information. If there's ever been an opportunity to displace Microsoft on the desktop, this is it. And they're going to great lengths to ensure that doesn't happen," he said.

Computer makers would like to thwart any efforts by Microsoft to dominate cyberspace to the same extent that it controls the PC desktop. But top hardware vendors won't roll over and play dead.

Some, such as IBM and Hewlett-Packard Co., last week said they are talking with Microsoft about their licensing agreement requirements on the interface and boot-up issues. PC makers want to add their custom interfaces to the desktop.

JUST FEUDING

But six users interviewed by *Computerworld* said they view the issue largely as an interne-cine vendor conflict, not something that concerns them except in some very specific instances.

"I don't care about it, and none of my end users notice what boots first as long as they

can access applications and do their jobs," said Dan Schuffert, a senior systems programmer at a large paper manufacturer in the Midwest.

Frank Delargy, a senior information systems manager at Polaroid Corp. in Waltham, Mass., said he isn't concerned, as long as Microsoft makes no attempt to infringe on his rights as an user to customize the interface. "I would rather that the screen be an advertisement for Polaroid than Microsoft," he said.

"Whatever comes up on users' screens is real estate that is essentially owned by the PC vendors. They do have the option of saying no to Microsoft's licensing requests," said an analyst at a Boston-based investment firm, who requested anonymity. He likened the PC screen to property that can be rented in much the same way as a billboard.

"Whoever wants to pay the rental fee should get the benefit of having their advertisement in front of the consumer public. And if Microsoft can entice the PC vendors to rent them that space by leveraging licensing deals, they deserve to reap the bounty," the analyst said.

The Justice Department hadn't responded at press time to calls about whether it will take any antitrust action against Microsoft regarding the boot-Windows-first licensing provision.

OEMs tightlipped about licensing

Leading PC makers may grouse amongst themselves about Microsoft's efforts to enforce licensing agreements, but they were decidedly more reticent about commenting on the ongoing discussions.

Only Hewlett-Packard in Palo Alto, Calif., would elaborate in any detail on the issue. Jim McDonnell, worldwide marketing director of HP's PC business, said he believes his firm has room to maneuver. "Microsoft's goal would be [to have everything come up Windows], and we would prefer to be able to have some ability to differentiate our product," McDonnell said. He noted that HP's line of consumer PCs includes a page that helps end users with setup information, among other things.

A spokesman for Compaq Computer Corp., the No. 1 PC maker, declined to comment on whether its licensing agreements with Microsoft will or already do include the requirement that systems preloaded with Windows boot up to its main window before anything else.

Dell Computer Corp. in Austin, Texas, said Microsoft doesn't suggest whether Dell should preload any particular operating systems within the Windows family. But a spokesman declined to discuss the boot issue or other specifics of its licensing arrangements with Microsoft.

Microsoft (see story at left), said it has always required OEMs to give users the Windows interface upon booting up machines for the first time but allows for other interfaces to be added or changed after that. — Laura DiDio and April Jacobs

Extent of browser probe disputed

Netscape and Microsoft disagree on the extent of the ongoing Justice Department probe into Microsoft's alleged unfair browser marketing tactics.

But Gary Reback, a lawyer at Netscape, said the government has widened the scope of its investigation.

Reback said the Civil Investigative Demand office of the Justice Department requested that Netscape send documents "related to many aspects of Internet technology far beyond the browser market." He declined to elaborate.

A Microsoft spokesman denied that the browser probe had been expanded. "We are not aware of any new direction in the ongoing investigation. The Justice Department hasn't requested any documents other than those dealing with browsers," the spokesman said. — Laura DiDio and April Jacobs

Oracle under the gun

CONTINUED FROM PAGE 1

Corp. in New York this year built a World Wide Web-based financial research library using the object-enabled Illustra database that Informix bought and is blending with its relational engine to create Universal Server.

The investment firm plans to migrate to Universal Server in January.

The DataBlade plug-in technology at the heart of Universal Server eliminated the eight weeks of work that would have been required to tie a database to a text search engine and Web interface builder, said Michelle Kildunne, director of fixed-

income trading technology at CS First Boston.

Sabre Decision Technologies, the software development unit of AMR Corp. in Fort Worth, Texas, currently uses Oracle as its decision-support database. But Informix has the inside track for an expanded and object-oriented data warehouse that will be built next year, said Brad Jensen, a Sabre vice president in charge of creating planning systems for AMR's American Airlines unit.

Oracle could get back in the race if Universal Server flunks ongoing tests, Jensen said. "But this is a case of us having a busi-

ness need that technology is catching up to, not the other way around. Time is of the essence here," he said.

Wayne Eckerson, an analyst at Patricia Seybold Group in Boston, said Informix's shipment of Universal Server should be "a watershed moment" in the database market. "They have Oracle on the run big-time," he said.

A half-dozen other users at DB/Expo who looked at Universal Server also said it gives Informix an edge over Oracle. Universal Server provides a single platform for putting objects and multimedia data such as video, images and audio alongside standard relational files.

Oracle announced its own Universal Server package in February with support for video,

text and spatial data. But its video server is "basically a separate product," said Alfred Watkins, a senior technical staff member at AT&T Laboratories in Holmdel, N.J. "You're left to do the integration yourself."

Informix "is way ahead of the present version of what Oracle has" for supporting complex forms of data, said Raghunath Gopalakrishnan, chairman of Aqua Gem Consultancy Services, Inc., a Princeton, N.J., company that develops applications for financial and telecommunications customers.

But Mark Jarvis, vice president of server marketing at Oracle, said any suggestion that Informix is ahead is "basically a misunderstanding in the market." Jarvis said Oracle's "gener-

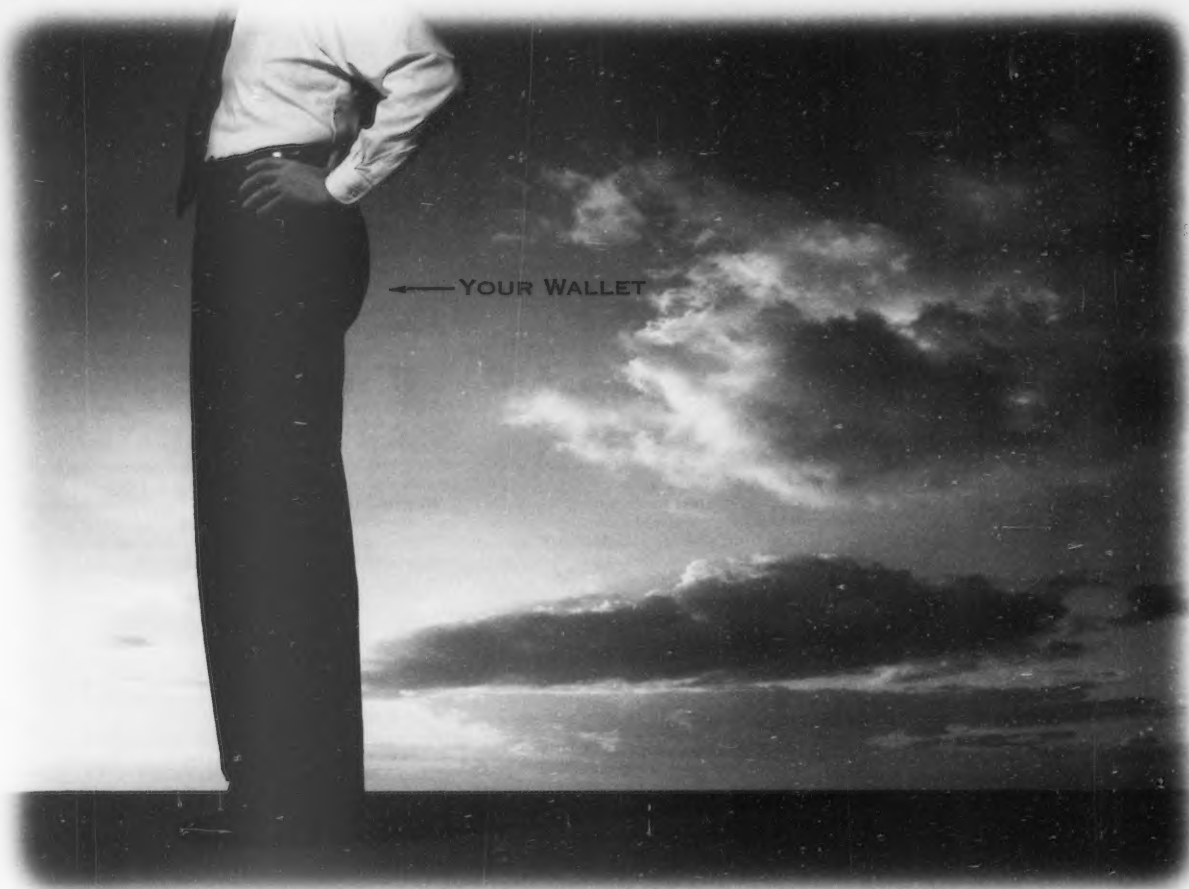
al take 'been there, done that.' The only catch-up here is on Informix's part."

One factor that may minimize Informix's time-to-market lead over Oracle8 is its initial support for only Unix systems from Sun Microsystems, Inc. and Silicon Graphics, Inc. Windows NT and other Unix platforms won't follow until the middle of next year.

Alex Berlin, director of software engineering at Multex Systems, Inc. in New York, said Informix's Universal Server looks "cleaner and more advanced" than what Oracle offers. But he said the lack of up-front Windows NT support may force Multex to use Oracle for a financial information database that it markets to investment firms.

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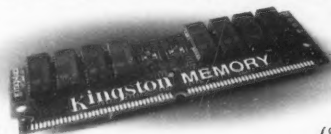


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COMMENTARY

Don't let Microsoft hijack Java

David Coursey

I don't live in the Sun "Java is all things" reality-distortion field, but I think Java could prove very important to business and personal computing. The Internet needs a platform, and Java wants to provide it.

Java also wants to be the guarantor of cross-platform application compatibility. The guarantor of a single target environment for developers of client/server applications. The competitor that keeps Microsoft honest and Netscape et al. alive.

If you think those things are important, it's time to start voting with your voice and your dollars. I'll point you to the ballot box in a moment.

Why the call to action? Barely a year after deciding to support Java, Microsoft appears to be planning to run off with it. The company is working on a native-code compiler for Java that would let developers build faster Java applets — but only if they're optimized for Windows [CW, Dec. 2]. That could fragment Java and ruin cross-platform compatibility — if your idea of cross-platform is broader than Windows and NT.

Does the world need Microsoft to add all manner of proprietary enhancements to Java? I hardly think so. I've said for

some time that Microsoft has failed to learn the lessons of the Internet. "Internet values" are to Microsoft as "family values" are to politicians: nice to talk about but something else entirely to commit to. Microsoft doesn't understand that the Internet explosion took place because open standards finally won a battle — though certainly not the war.

For all the lip service it pays to openness, Microsoft is really more interested in customer lock-in than in advancing the state of the art. That's sad because

Microsoft would be just as big and just as strong if it played on a level field. The only difference is that the company would have more teams to play against, and we'd all benefit from that.

But I just happen to have a convenient way for you to fight back. If you'd like to make your feelings known, drop by the Microsoft Wish List (www.microsoft.com/support/feedback/mswish.htm) and leave a comment. Please send me a copy, too. I'll make sure they get to the proper executives in Redmond.



This is your chance to be heard. Tell Microsoft to adhere to the standard Java implementation being created by Sun, Netscape and virtually the entire non-Microsoft world.

Tell Microsoft you want a standard virtual machine, not something the company dreamed up to keep you locked in to its operating systems, development tools and applications. Tell Microsoft that compatibility and openness more

than make up for whatever bells and whistles it can offer as incentives for customer lock-in.

The next six months may decide whether Java grows up as a platform or is relegated to the status of a programming language (which won't threaten Microsoft platforms). By doing nothing, you vote for the latter. Only by raising a stink — by making yourself heard loud and clear — can you prevent Java from being shunted off to the language lab.

When Java was licensed to Microsoft, I was against the move, which I hope both Sun and Netscape now regret. The vendors failed to prevent a hijacking, but maybe it isn't too late for the will of the corporate customer.

When Microsoft offers you a nonstandard Java implementation — with features neither Sun nor Netscape support — insist that you want your Java straight, without additives.

Coursey is editor and publisher of "coursey.com," an electronic newsletter at www.coursey.com. When you send your little Java valentine to Microsoft, you can cc: him at david@coursey.com.

Flaps on 'net devour data

Charles Babcock

I know IS managers who talk seriously about using the Internet as their corporate WAN. They must not know what they're getting into. For E-mail, it makes sense to rely on the Internet — if you can afford to lose messages occasionally. For distributing key corporate applications, it doesn't.

The Internet is a wonderful thing — if you like rapid, organic growth environments such as catfish ponds and the Okefenokee Swamp. If you depend on the Internet for critical data conveyance, you'd better realize what you're waving into. "Route flapping," for instance.

We all know that use of the 'net has mushroomed. But few people understand how all the new traffic is being handled. Behind the scenes, Internet routing resources are strained to the limit — and often beyond. Routers read addresses contained in headers of data packets that are transmitted over the 'net. They then look up the address in their routing tables to calculate a route along which to forward the packet.

To get a clearer picture of how this traffic system works — and sometimes

doesn't — I talked to Bill Norton, head of the Internet Engineering Group at Merit

Network Systems, Inc., the Ann Arbor, Mich., company that manages MichNet. Norton also is chairman of the North American Network Operators Group, a professional group of Internet service providers.

Nationwide, there are about 2,500 Internet service providers, according to Norton. Many providers are just beginning to get acquainted with the problems their routers encounter on the Internet.

Five central route servers keep service providers' routers updated in real time

regarding which other nodes are available. But in the process, each router's routing tables have grown much larger. And the backbone Internet service suppliers, of which there are about a dozen, keep adding to the rules that dictate how to choose a route.

FOLLOW THE RULES

Some of these backbone providers have a peer relationship with one another; they share routing rules and directly exchange traffic among their regions. They don't want to carry more than their fair share



of traffic, so they build rules into their routers that encourage handing off a message to a competing carrier at the earliest opportunity.

Some service providers' routers are stretched to the breaking point by the combination of constant updates, large routing tables and complex rules. Some overburdened routers come online only to go down again right away. When that happens, an update concerning the on-again-off-again routers' appearance is broadcast to other routers. That update must

be followed by the posting of their disappearance. That, Norton explains, is known as route flapping.

"We have seen announcements of availability, followed by immediate withdrawals," Norton says. "A transmission proceeds hop by hop. Every time there's a flap, there has to be a recalculation of routes."

Norton stops short of recommending that corporate IS refrain from using the Internet altogether, but he points out that route flapping occurs daily, that the problem is far from being resolved and that it's common for 30% of packets to be lost in a flap. Sometimes those packets can be recovered by retransmission from the source. Sometimes they're gone for good.

Norton's group of service providers is working on solutions, but he says it's difficult to get competitors to talk frankly about their capacity problems.

The 'net's rapid growth is outstripping the ability of a loose federation of suppliers to keep up. Those who decide to send their data over the 'net run increased risks of it disappearing into a route flap.

Babcock is Computerworld's technical editor. His Internet address is charles_babcock@cw.com.

alt.cw

Dispatches & images from the fringes of the electronic frontier

The Back Page

Cyberchat

It's almost enough to make you look forward to getting junk E-mail. Spam Hater is a free Windows program that can fire off a nastygram to people who send you spam E-mail. We haven't given it a thorough test-run and don't vouch for it. But if you're brave, try it yourself at www.compulink.co.uk/~net-services/spam/. The software includes a selection of return flame mail for people with too little time or vitriol to compose their own. — *Mitch Wagner*

If you build it, they will chat. That's the motto of the programmers who developed CyberBabble, free beta software for Windows 95 or Windows NT. It's available at www.cyberbabble.rwsystems.net. The Internet chat program has the following features:

- Unlimited connections. Chat with 87 of your closest friends at once — you decide the limit.
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With the Eagle Notebook Display Stand, you, too, can give computer-based presentations without having to hunch over. It costs \$99.95 from Mobile Planet in Canoga Park, Calif.



GHOST SITES OF THE WEB

Steve Baldwin has chronicled the growing graveyard of old, abandoned, obsolete and decaying home pages at



Ghost Sites of the Web (www.pathfinder.com/technology/ghostsites/). For example, the "Jerry

Garcia is Dead" site hasn't been updated since August 1995. But Baldwin says he's run out of time for ghost-busting, so Ghost Sites is headed to the graveyard, too.

Deep Trivia

What was the first document put on the Web?

☞ The telephone book for CERN, the European Particle Physics Laboratory in Geneva.

What was the first item to have its universal product code scanned?

☞ A pack of Wrigley's gum, at Marsh's Supermarket in Troy, Ohio, in 1974.

Where did the name for Forrester Research come from?

☞ Founder George Colony's middle name.

Sources: Tim Berners-Lee: *ID Systems*, Peterborough, N.H.; *Marketing Computers*, New York

Send your alt.cw contributions to mbetts@cw.com. If your item is used, you'll receive a cool T-shirt.



Maybe the reason you can't get the CEO to use a PC is the lack of a leather mouse pad to complement the executive suite. It's available from catalog firm Levenger in Delray Beach, Fla., for \$24.95. A monogram costs extra. It comes in "expresso" brown, red or black.



The mouse is passe. The Fifth Glove, designed for virtual reality applications, can emulate a mouse or joystick by measuring finger flex and hand positions. It's available from General Reality in San Jose, Calif., and costs \$495. The vendor claims you can even type while wearing the glove.

Inside Lines

Let's we forget

Sybase has mostly stood by and watched as its database rivals cranked up their hype machines this fall. But it finally is getting ready to do some cranking itself. Sources say the company plans next week to announce SQL Server Professional for Windows NT, which packages its database with Web development, query and data replication tools. Unix versions will follow at an unspecified date. Sybase also plans within the next couple of months to do a big strategy rundown aimed at calming users made nervous by its recent travails.

Shoot out the lights

Last week's DB/Expo '96 is the last one that will be held in New York, and it definitely had that *fin de siècle* atmosphere. Oracle didn't bother showing up, even for a group debate with other database vendors. Microsoft sent a few marketing and development types, but it didn't have a booth on the exhibit floor. And attendees had to compete with a neighboring convention of dentists for lunch tables and cabs. DB/Expo is merging with Unix Expo and an Internet conference into a new IT Forum show that will debut next September.

No room at the road warrior inn

Organizers of last week's Hand-Held and PDA Expo and Forum in San Mateo, Calif., may want to consider a change of venue. Attendees who stayed at the San Mateo Omni Dunfee suffered from guest rooms set in the Stone Age: hard-wired phones with no data ports for modem capabilities. A show spokeswoman acknowledged the irony and said the group is working on finding a more up-to-date site next year. "So close to Christmas, all the hotels were booked," she said.

The 10% rule

A computer engineer at MCI Communications was asked how to figure how much storage capacity a network should require. "Well, you need 10% more storage than you've got — always," said Jim Parkhurst, senior staff engineer at MCI in San Jose, Calif.

Bill Gates gets animated

Dreamworks SKG co-founder Steven Spielberg may be pals with Microsoft honcho Bill Gates, but that didn't stop Spielberg's Amblin Entertainment from spoofing the billionaire. Amblin's Animaniacs cartoon last week featured a bespectacled nerdy character named Bill who demonstrated his interpersonal skills by videoconferencing with three co-workers in the same room as him. The cartoon Bill also made declarations about owning everything in the world.

What's up, OpenDoc?

Look for IBM to release OpenDoc for Windows at Database and Client/Server World in Chicago this week. This will be the architecture's first foray onto Windows and is generally thought to be an integral step in helping the technology gain attention and market share.

Microsoft in Denali

On Wednesday, Microsoft will launch the final version of Denali, its scripting development environment for the Internet Information Server, sources familiar with the announcement said. Bob Muglia, vice president of the Internet platform and tools division, will outline the details in a keynote Thursday at Internet World '96 in New York.

Here's one story we won't be bringing you: We got an advisory for an upcoming announcement that came in the form of a puzzle. It was a little plastic doodad, and apparently you had to fold and bend it to the right shape. Presumably, when the puzzle was solved, you'd reveal the name of the sponsoring company, what they're announcing and when. But we're not that good at puzzles, so we gave up and played Yahtzee instead. If you have news for Computerworld, contact news editor Patricia Keefe at (800) 343-6474 or patricia_keefe@cw.com. And please give us enough information to puzzle it out.

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—Steve Rees
Systems Manager
Taronga Park Zoo
Sydney, Australia

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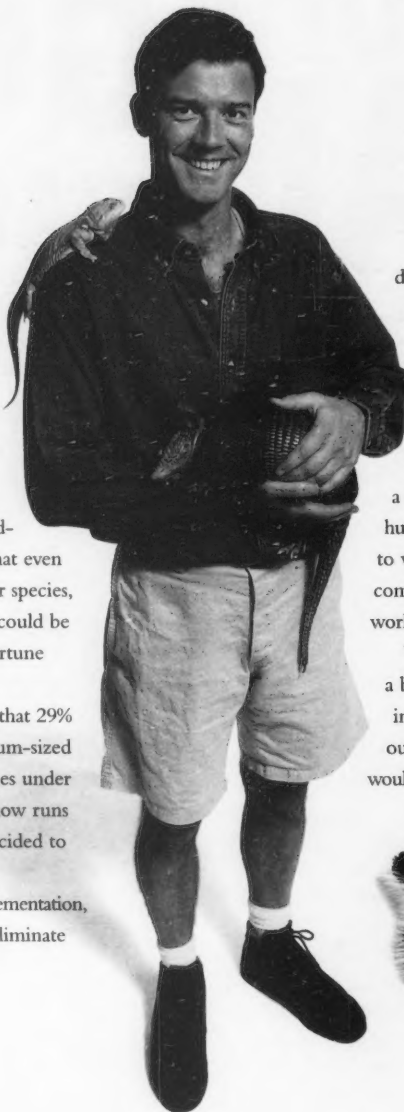
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